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&lt;210&gt; 3850

&lt;211&gt; 257

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3850

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Arg | Val | Ala | Trp | Arg | Thr | Leu | Ser | Leu | Ile | Arg | Thr | Arg | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Thr | Gln | Val | Leu | Val | Pro | Gly | Leu | Pro | Gly | Gly | Gly | Ser | Ala | Lys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Phe | Pro | Phe | Asn | Gln | Trp | Gly | Leu | Gln | Pro | Arg | Ser | Leu | Leu | Leu | Gln |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Ala | Ala | Arg | Gly | Tyr | Val | Val | Arg | Lys | Pro | Ala | Gln | Ser | Arg | Leu | Asp |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Asp | Asp | Pro | Pro | Pro | Ser | Thr | Leu | Leu | Lys | Asp | Tyr | Gln | Asn | Val | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gly | Ile | Glu | Lys | Val | Asp | Asp | Val | Val | Lys | Arg | Leu | Leu | Ser | Leu | Glu |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     | 95  |     |     |
| Met | Ala | Asn | Lys | Lys | Glu | Met | Leu | Lys | Ile | Lys | Gln | Glu | Gln | Phe | Met |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Lys | Lys | Ile | Val | Ala | Asn | Pro | Glu | Asp | Thr | Arg | Ser | Leu | Glu | Ala | Arg |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ile | Ile | Ala | Leu | Ser | Val | Lys | Ile | Arg | Ser | Tyr | Glu | Glu | His | Leu | Glu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Lys | His | Arg | Lys | Asp | Lys | Ala | His | Lys | Arg | Tyr | Leu | Leu | Met | Ser | Ile |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |
| Asp | Gln | Arg | Lys | Lys | Met | Leu | Lys | Asn | Leu | Arg | Asn | Thr | Asn | Tyr | Asp |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Val | Phe | Glu | Lys | Ile | Cys | Trp | Gly | Leu | Gly | Ile | Glu | Tyr | Thr | Phe | Pro |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 180 |     | 185 |     | 190 |     |     |     |     |     |     |     |     |     |     |
| Pro | Leu | Tyr | Tyr | Arg | Arg | Ala | His | Arg | Arg | Phe | Val | Thr | Lys | Lys | Ala |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |
| Leu | Cys | Ile | Arg | Val | Phe | Gln | Glu | Thr | Gln | Lys | Leu | Lys | Lys | Arg | Arg |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Arg | Ala | Leu | Lys | Ala | Ala | Ala | Ala | Ala | Gln | Lys | Gln | Ala | Lys | Arg | Arg |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     | 240 |     |
| Asn | Pro | Asp | Ser | Pro | Ala | Lys | Ala | Ile | Pro | Lys | Thr | Leu | Lys | Asp | Ser |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Gln |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 3851

&lt;211&gt; 1183

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3851

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<212> PRT

<213> Homo sapiens

<400> 3852

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| Met | Val | Gly | Phe | Gly | Ala | Asn | Arg | Arg | Ala | Gly | Arg | Leu | Pro | Ser | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Leu | Val | Val | Leu | Leu | Val | Val | Ile | Val | Val | Leu | Ala | Phe | Asn | Tyr |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Trp | Ser | Ile | Ser | Ser | Arg | His | Val | Leu | Leu | Gln | Glu | Glu | Val | Ala | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Gln | Gly | Gln | Val | Gln | Arg | Thr | Glu | Val | Ala | Arg | Gly | Arg | Leu | Glu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Lys | Arg | Asn | Ser | Asp | Leu | Leu | Leu | Leu | Val | Asp | Thr | His | Lys | Lys | Gln |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ile | Asp | Gln | Lys | Glu | Ala | Asp | Tyr | Gly | Arg | Leu | Ser | Ser | Arg | Leu | Gln |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ala | Arg | Glu | Gly | Leu | Gly | Lys | Arg | Cys | Glu | Asp | Asp | Lys | Val | Lys | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gln | Asn | Asn | Ile | Ser | Tyr | Gln | Met | Ala | Asp | Ile | His | His | Leu | Lys | Glu |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Gln | Leu | Ala | Glu | Leu | Arg | Gln | Glu | Phe | Leu | Arg | Gln | Glu | Asp | Gln | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gln | Asp | Tyr | Arg | Lys | Asn | Asn | Thr | Tyr | Leu | Val | Lys | Arg | Leu | Glu | Tyr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Glu | Ser | Phe | Gln | Cys | Gly | Gln | Gln | Met | Lys | Glu | Leu | Arg | Ala | Gln | His |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Glu | Glu | Asn | Ile | Lys | Lys | Leu | Ala | Asp | Gln | Phe | Leu | Glu | Glu | Gln | Lys |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Gln | Glu | Thr | Gln | Lys | Ile | Gln | Ser | Asn | Asp | Gly | Lys | Glu | Leu | Asp | Ile |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Asn | Asn | Gln | Val | Val | Pro | Lys | Asn | Ile | Pro | Lys | Val | Ala | Glu | Asn | Val |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ala | Asp | Lys | Asn | Glu | Glu | Pro | Ser | Ser | Asn | His | Ile | Pro | His | Gly | Lys |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     |     | 240 |
| Glu | Gln | Ile | Lys | Arg | Gly | Gly | Asp | Ala | Gly | Met | Pro | Gly | Ile | Glu | Glu |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Asn | Asp | Leu | Ala | Lys | Val | Asp | Asp | Leu | Pro | Pro | Ala | Leu | Arg | Lys | Pro |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Pro | Ile | Ser | Val | Ser | Gln | His | Glu | Ser | His | Gln | Ala | Ile | Ser | His | Leu |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Pro | Thr | Gly | Gln | Pro | Leu | Ser | Pro | Asn | Met | Pro | Pro | Asp | Ser | His | Ile |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Asn | His | Asn | Gly | Asn | Pro | Gly | Thr | Ser | Lys | Gln | Asn | Pro | Ser | Ser | Pro |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Leu | His | Ala |     |     |     |     |     |     |     |     |     |     |     |     |     |

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<400> 3854  
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&lt;210&gt; 3856

&lt;211&gt; 330

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3856

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Ala | Thr | Met | Ala | Thr | Tyr | Asn | Gln | Leu | Ser | Tyr | Ala | Gln | Lys |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Ala | Lys | Tyr | His | Leu | Cys | Ser | Ala | Gly | Trp | Leu | Glu | Thr | Gly | Arg | Val |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | Tyr | Pro | Thr | Ala | Phe | Ala | Ser | Gln | Asn | Cys | Gly | Ser | Gly | Val | Val |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |
| Gly | Ile | Val | Asp | Tyr | Gly | Pro | Arg | Pro | Asn | Lys | Ser | Glu | Met | Trp | Asp |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |
| Val | Phe | Cys | Tyr | Arg | Met | Lys | Asp | Val | Asn | Cys | Thr | Cys | Lys | Val | Gly |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |
| Tyr | Val | Gly | Asp | Gly | Phe | Ser | Cys | Ser | Gly | Asn | Leu | Leu | Gln | Val | Leu |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |
| Met | Ser | Phe | Pro | Ser | Leu | Thr | Asn | Phe | Leu | Thr | Glu | Val | Leu | Ala | Tyr |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |
| Ser | Asn | Ser | Ser | Ala | Arg | Gly | Arg | Ala | Phe | Leu | Glu | His | Leu | Thr | Asp |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |
| Leu | Ser | Ile | Arg | Gly | Thr | Leu | Phe | Val | Pro | Gln | Asn | Ser | Gly | Leu | Gly |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |
| Glu | Asn | Glu | Thr | Leu | Ser | Gly | Arg | Asp | Ile | Glu | His | His | Leu | Ala | Asn |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |
| Val | Ser | Met | Phe | Phe | Tyr | Asn | Asp | Leu | Val | Asn | Gly | Thr | Xaa | Pro | Ala |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |
| Asn | Glu | Gly | Gly | Lys | Gln | Ala | Ala | His | His | Cys | Gln | Pro | Gly | Pro | Thr |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |
| Xaa | Gln | Pro | Thr | Glu | Thr | Arg | Phe | Val | Asp | Gly | Arg | Ala | Ile | Leu | Gln |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |
| Trp | Asp | Ile | Phe | Ala | Ser | Asn | Gly | Ile | Ile | His | Val | Ile | Ser | Arg | Pro |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |
| Leu | Lys | Ala | Pro | Pro | Ala | Pro | Val | Thr | Leu | Thr | His | Thr | Gly | Leu | Gly |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Ala | Gly | Ile | Phe | Phe | Ala | Ile | Ile | Leu | Val | Thr | Gly | Ala | Val | Ala | Leu |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |
| Ala | Ala | Tyr | Ser | Tyr | Phe | Arg | Ile | Asn | Arg | Arg | Thr | Ile | Gly | Phe | Gln |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |
| His | Phe | Glu | Ser | Glu | Glu | Asp | Ile | Asn | Val | Ala | Ala | Leu | Gly | Lys | Gln |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     | 285 |     |     |     |     |  |
| Gln | Pro | Glu | Asn | Ile | Ser | Asn | Pro | Leu | Tyr | Glu | Ser | Thr | Thr | Ser | Ala |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |
| Pro | Pro | Glu | Pro | Ser | Tyr | Asp | Pro | Phe | Thr | Asp | Ser | Glu | Glu | Arg | Gln |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |
| Leu | Glu | Gly | Asn | Asp | Pro | Leu | Arg | Thr | Leu |     |     |     |     |     |     |  |
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<211> 797

<212> DNA

<213> Homo sapiens

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 gcacgccccca tattagtggc ccggggcccg gcaggcccag ctcaaaagag ggcagacgca  
 660  
 gcgacacttg ttcttcacac accccattc ggcgtagtac ccagagagct caagatgtgt  
 720  
 ggcagttttc ggatggaagc tcgagagccc ttaagttctg agaaaatttg aagcccccg  
 780  
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 797

<210> 3858

<211> 76

<212> PRT

<213> Homo sapiens

<400> 3858

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Arg | Ala | Thr | Thr | Arg | Thr | Ala | Ser | Gly | Ala | Arg | Ser | Trp | Ala | Trp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Thr | Arg | Ala | Ala | Pro | Cys | Pro | Thr | Ser | Cys | Arg | Ala | Trp | Cys | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | Pro | Cys | Ser | Thr | Ser | Ala | Arg | Pro | Ser | Thr | Arg | Ser | Trp | Ala | Arg |
|     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |     |
| Ser | Ile | Ser | Ala | Ala | Thr | Trp | Pro | Arg | Pro | Arg | Ala | Thr | Gly | Thr | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ala | Thr | Lys | Thr | Arg | Trp | Pro | Ala | Ser | Arg | Thr | Ala |     |     |     |     |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     |     |

<210> 3859

<211> 1449

<212> DNA

<213> Homo sapiens

<400> 3859

tacaagaata aaaagcaagt ggggaagtat ttctggcctc ggattacaaa ggttcacttc  
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 aaggagactc aatttgaact cagagtactg ggaaaagatt gtaacgaaac ctattcttt  
 120  
 tttgaagctc ggagtaaaac tgcttgcaag cacctctgga agtgcaagtgt ggaacatcat  
 180  
 acatttttta gaatgccaga aaatgaatcc aattcactgt caagaaaact cagcaagttt  
 240  
 ggatccatac gttataagca ccgctacagt ggcaggacag ctttgcaaact gagccgagat  
 300  
 ctttctattc agcttccccg gcctgatcag aatgtgacaa gaagtcgaag caagacttac  
 360

cctaagcgaa tagcacaaac acagccagct gaatcaaaca ccatcagtag gataactgca  
 420  
 aacatggaaa atggagaaaa tgaaggaaca attaaaatta ttgcaccttc accagtaaaa  
 480  
 agctttaaga aagcaaagaa tgaaaatagc cctgataccc aaagaagcaa atctcatgca  
 540  
 ccgtgggaag aaaatggccc ccagagtgga ctctacaatt ctcccagtga tcgcactaag  
 600  
 tcgccaaagt tcccttacac gcgtcgccga aaccctctct gtggaagtga caatgattct  
 660  
 gtacagcctg tgaggaggag gaaagcccat aacagtgggtg aagattcaga tcttaagcaa  
 720  
 aggaggaggt cacgttcacg ctgtaacacc agcagtggta gtgaatcaga aaattctaata  
 780  
 agagaacacc ggaaaaagag aaacagaata cggcaggaga atgatatggt tgattcagcg  
 840  
 cctcagtggg aagctgtatt aaggagacaa aaggaaaaaa accaagccga cccaacaac  
 900  
 aggcgatcca gacacagatc tcgttcgaga agccccgata tccaagcaaa agaagagtta  
 960  
 tggaagcaca ttcaaaaaga acttgtggat ccatccggat tgtccgaaga acaattaaaa  
 1020  
 gagattccat aactaaaaat agagtgagtg cttttcagaa tcttctcacc aaagctttat  
 1080  
 tagtgcttga cacaaggtga cccaatccgc atcaggcatt ctcatcgcgc acgaagttac  
 1140  
 cgccagtatc gcagggtccca gtgttcagat ggggagcgat cagttctctc ggaagtgaat  
 1200  
 tcaaaaaacag atcttgtacc accacttccg gtgaccatt cttcggtatgc tcagggttct  
 1260  
 ggggatgcta cagttcatca gagaagaaat ggggtctaaag atagcctgat ggaagaaaaa  
 1320  
 cctcagacat ctacaaacaa cctggctgga aaacacacag caaaaacaat aaaaactata  
 1380  
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 1440  
 aaggttggtg  
 1449

<210> 3860  
 <211> 348  
 <212> PRT  
 <213> Homo sapiens

<400> 3860  
 Tyr Lys Asn Lys Lys Gln Val Gly Lys Tyr Phe Trp Pro Arg Ile Thr  
 1 5 10 15  
 Lys Val His Phe Lys Glu Thr Gln Phe Glu Leu Arg Val Leu Gly Lys  
 20 25 30  
 Asp Cys Asn Glu Thr Ser Phe Phe Phe Glu Ala Arg Ser Lys Thr Ala  
 35 40 45  
 Cys Lys His Leu Trp Lys Cys Ser Val Glu His His Thr Phe Phe Arg  
 50 55 60  
 Met Pro Glu Asn Glu Ser Asn Ser Leu Ser Arg Lys Leu Ser Lys Phe

|   |     |    |  |     |  |     |
|---|-----|----|--|-----|--|-----|
| 65  |     | 70 |  | 75  |  | 80  |
| Gly Ser Ile Arg Tyr Lys His Arg Tyr Ser Gly Arg Thr Ala Leu Gln |     |    |  |     |  |     |
|   | 85  |    |  | 90  |  | 95  |
| Met Ser Arg Asp Leu Ser Ile Gln Leu Pro Arg Pro Asp Gln Asn Val |     |    |  |     |  |     |
|   | 100 |    |  | 105 |  | 110 |
| Thr Arg Ser Arg Ser Lys Thr Tyr Pro Lys Arg Ile Ala Gln Thr Gln |     |    |  |     |  |     |
|   | 115 |    |  | 120 |  | 125 |
| Pro Ala Glu Ser Asn Thr Ile Ser Arg Ile Thr Ala Asn Met Glu Asn |     |    |  |     |  |     |
|   | 130 |    |  | 135 |  | 140 |
| Gly Glu Asn Glu Gly Thr Ile Lys Ile Ile Ala Pro Ser Pro Val Lys |     |    |  |     |  |     |
|   | 145 |    |  | 150 |  | 155 |
| Ser Phe Lys Lys Ala Lys Asn Glu Asn Ser Pro Asp Thr Gln Arg Ser |     |    |  |     |  |     |
|   | 165 |    |  | 170 |  | 175 |
| Lys Ser His Ala Pro Trp Glu Glu Asn Gly Pro Gln Ser Gly Leu Tyr |     |    |  |     |  |     |
|   | 180 |    |  | 185 |  | 190 |
| Asn Ser Pro Ser Asp Arg Thr Lys Ser Pro Lys Phe Pro Tyr Thr Arg |     |    |  |     |  |     |
|   | 195 |    |  | 200 |  | 205 |
| Arg Arg Asn Pro Ser Cys Gly Ser Asp Asn Asp Ser Val Gln Pro Val |     |    |  |     |  |     |
|   | 210 |    |  | 215 |  | 220 |
| Arg Arg Arg Lys Ala His Asn Ser Gly Glu Asp Ser Asp Leu Lys Gln |     |    |  |     |  |     |
|   | 225 |    |  | 230 |  | 235 |
| Arg Arg Arg Ser Arg Ser Arg Cys Asn Thr Ser Ser Gly Ser Glu Ser |     |    |  |     |  |     |
|   | 245 |    |  | 250 |  | 255 |
| Glu Asn Ser Asn Arg Glu His Arg Lys Lys Arg Asn Arg Ile Arg Gln |     |    |  |     |  |     |
|   | 260 |    |  | 265 |  | 270 |
| Glu Asn Asp Met Val Asp Ser Ala Pro Gln Trp Glu Ala Val Leu Arg |     |    |  |     |  |     |
|   | 275 |    |  | 280 |  | 285 |
| Arg Gln Lys Glu Lys Asn Gln Ala Asp Pro Asn Asn Arg Arg Ser Arg |     |    |  |     |  |     |
|   | 290 |    |  | 295 |  | 300 |
| His Arg Ser Arg Ser Arg Ser Pro Asp Ile Gln Ala Lys Glu Glu Leu |     |    |  |     |  |     |
|   | 305 |    |  | 310 |  | 315 |
| Trp Lys His Ile Gln Lys Glu Leu Val Asp Pro Ser Gly Leu Ser Glu |     |    |  |     |  |     |
|   | 325 |    |  | 330 |  | 335 |
| Glu Gln Leu Lys Glu Ile Pro Tyr Thr Lys Ile Glu                 |     |    |  |     |  |     |
|   | 340 |    |  | 345 |  |     |

&lt;210&gt; 3861

&lt;211&gt; 748

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3861

nagattggag tccggccgcc ccccgacagc agccgcctcc tgccttcttc gctgctagge

60

gccaccatgt cgggagacaa acttctgagc gaactcggtt ataagctggg ccgcacaatt

120

ggagagggca gctactccaa ggtgaagggt gccacatcca agaagtacaa gggtagcgtg

180

gccatcaagg tggtggaccg gcggcgagcg ccccgaggact tcgtcaacaa gttcctgccc

240

cgagagctgt ccatactgcg gggcgtgcga caccgcaca tcgtgcacgt cttcgagttc

300

atcgaggtgt gcaacgggaa actgtacatc gtgatggaag cggccgccac cgacctgctg

360

caagccgtgc agcgcaacgg gcgcaccccc ggagttcagg cgcgcgacct ctttgcgag  
 420  
 atcgccggcg ccgtgcgcta cctgcacgat catcacctgg tgcaccgga cctcaagtgc  
 480  
 gaaaacgtgc tgctgagccc ggacgagcgc cgcgtcaagc tcaccgactt cggcttcggc  
 540  
 cgccaggccc atggctaccc agacctgagc accacctact gcggctcagc cgtacgcgtc  
 600  
 acccgagtca tgcatttctt gagcacctac tgtctgccag gccccagagc tcatggcgaa  
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 gagacttggg cccatccctg ccgaaaacga gacaattgaa aagtcaagta aaataaaaga  
 720  
 atgacatgga aataaaaaaa aaaaaaaa  
 748

<210> 3862  
 <211> 210  
 <212> PRT  
 <213> Homo sapiens

<400> 3862  
 Met Ser Gly Asp Lys Leu Leu Ser Glu Leu Gly Tyr Lys Leu Gly Arg  
 1 5 10 15  
 Thr Ile Gly Glu Gly Ser Tyr Ser Lys Val Lys Val Ala Thr Ser Lys  
 20 25 30  
 Lys Tyr Lys Gly Thr Val Ala Ile Lys Val Val Asp Arg Arg Arg Ala  
 35 40 45  
 Pro Pro Asp Phe Val Asn Lys Phe Leu Pro Arg Glu Leu Ser Ile Leu  
 50 55 60  
 Arg Gly Val Arg His Pro His Ile Val His Val Phe Glu Phe Ile Glu  
 65 70 75 80  
 Val Cys Asn Gly Lys Leu Tyr Ile Val Met Glu Ala Ala Ala Thr Asp  
 85 90 95  
 Leu Leu Gln Ala Val Gln Arg Asn Gly Arg Ile Pro Gly Val Gln Ala  
 100 105 110  
 Arg Asp Leu Phe Ala Gln Ile Ala Gly Ala Val Arg Tyr Leu His Asp  
 115 120 125  
 His His Leu Val His Arg Asp Leu Lys Cys Glu Asn Val Leu Leu Ser  
 130 135 140  
 Pro Asp Glu Arg Arg Val Lys Leu Thr Asp Phe Gly Phe Gly Arg Gln  
 145 150 155 160  
 Ala His Gly Tyr Pro Asp Leu Ser Thr Thr Tyr Cys Gly Ser Ala Val  
 165 170 175  
 Arg Val Thr Arg Val Met His Phe Leu Ser Thr Tyr Cys Leu Pro Gly  
 180 185 190  
 Pro Arg Ala His Gly Glu Glu Thr Trp Ala His Pro Cys Arg Lys Arg  
 195 200 205  
 Asp Asn  
 210

<210> 3863  
 <211> 341  
 <212> DNA  
 <213> Homo sapiens



<400> 3863  
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60  
ctcactttga ggcttcctat tttctttaat cctgggggtac agctcccacc tggacacttc  
120  
agttttgctc tcagttggga ctctgggaaa aaaactgtgt ggctgatctc cagcaggttc  
180  
ttctggtcga ggctccccga gaaccatctg gccatgggct ggcagccgag ttctcgcagt  
240  
gtccaggctg acggtacatt ccaggctagc catcctatca taatcgaatc tgagtagatt  
300  
tttatcaatc gcttgggaca agccattgaa ttttcggaga g  
341

<210> 3864  
<211> 108  
<212> PRT  
<213> Homo sapiens

<400> 3864  
Met Ala Cys Pro Lys Arg Leu Ile Lys Ile Tyr Ser Asp Ser Ile Met  
1 5 10 15  
Ile Gly Trp Leu Ala Trp Asn Val Pro Ser Ala Trp Thr Leu Arg Glu  
20 25 30  
Leu Gly Cys Gln Pro Met Ala Arg Trp Phe Ser Gly Ser Leu Asp Gln  
35 40 45  
Lys Asn Leu Val Glu Ile Ser His Thr Val Phe Phe Pro Glu Ser Gln  
50 55 60  
Leu Arg Ala Lys Leu Lys Cys Pro Gly Gly Ser Cys Thr Pro Gly Leu  
65 70 75 80  
Lys Lys Ile Gly Ser Leu Lys Val Ser Cys Glu Glu Phe Leu Leu Met  
85 90 95  
Gly Leu Arg Tyr Gln His Leu Asp Pro Pro Ser Arg  
100 105

<210> 3865  
<211> 492  
<212> DNA  
<213> Homo sapiens

<400> 3865  
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aatcaggaat tgacgataag cttactacat tttgaaatta tctgactttc ctcatgaaat  
120  
gagacctatg tgaagcccac ttaattttct gaaacttcac atcatgtacc ttcatgttaa  
180  
tattctgaca cttgtttcat gcagccatac cagtcacaac tttaaatttt tagtcagact  
240  
ttgctcaciaa gggttcagga taattaatac aaatgggttg ggccagccat cacacagcag  
300  
tctcctatatt acttcactac aactacagct ttcattcttc attacattac tttttctgag  
360

tagtctgggt caaatagtac aaactgaata ttccttaacc aaaatgcttg gaagtaggcc  
 420  
 gggagcagcg gctcaccct gtaatcccag cattttggga ggccaaagca gacagatcac  
 480  
 tcaaggtcag ca  
 492

<210> 3866  
 <211> 109  
 <212> PRT  
 <213> Homo sapiens

<400> 3866  
 Met Tyr Leu His Cys Asn Ile Leu Thr Leu Val Ser Cys Ser His Thr  
 1 5 10 15  
 Ser His Asn Phe Lys Phe Leu Val Arg Leu Cys Ser Gln Gly Phe Arg  
 20 25 30  
 Ile Ile Asn Thr Asn Gly Leu Gly Gln Pro Ser His Ser Ser Leu Leu  
 35 40 45  
 Phe Thr Ser Leu Gln Leu Gln Leu Ser Phe Phe Ile Thr Leu Leu Phe  
 50 55 60  
 Leu Ser Ser Leu Gly Gln Ile Val Gln Thr Glu Tyr Ser Leu Thr Lys  
 65 70 75 80  
 Met Leu Gly Ser Arg Pro Gly Ala Ala Ala His Pro Cys Asn Pro Ser  
 85 90 95  
 Ile Leu Gly Gly Gln Ser Arg Gln Ile Thr Gln Gly Gln  
 100 105

<210> 3867  
 <211> 1032  
 <212> DNA  
 <213> Homo sapiens

<400> 3867  
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 60  
 gagcagcatc agactgagat cagggatctc caggaccagc tctcagaaat gcacgatgaa  
 120  
 ctggacagtg caaagcgatc ggaggacagg gagaagggag ctctgattga ggagctctta  
 180  
 caggcaaaac aggatcttca agatctgctg attgccaaag aggagcaaga agacctcttg  
 240  
 agaaagcgag agcgtgaact caccgccttg aaggagccc tgaaagaaga ggtttccagc  
 300  
 catgatcagg agatggacaa gctgaaggag caatatgatg ctgagttgca ggccctgagg  
 360  
 gagagtgtgg aagaagcaac caagaatgtc gaggtcttgg cgagcaggag caacacttca  
 420  
 gagcaagacc aggcggggac tgaaatgcgc gtgaagcttc tgcaggagga gaatgagaag  
 480  
 ctgcagggaa gaagcgaaga gctggagcgg agagttgctc agcttcaaag gcagatcgag  
 540  
 gacctgaaag gcgatgaagc caaggcgaag gaaacgctga agaagtacga gggagaaata  
 600

cgacagttag aggaggccct tgtgcacgcc agaaaggaag aaaaagaagc tgtgtcagcc  
 660  
 agaagggccc tggagaatga actggaggct gctcagggaa atctgagtca gactaccag  
 720  
 gagcagaagc agttgtctga gaagctcaaa gaggagagtg agcagaagga gcagctaaga  
 780  
 aggttgaaga acgagatgga gaatgagcgg tggcacctgg gcaaaacat tgagaaactg  
 840  
 cagaaggaga tggcagacat tggtgaggcc tcccgtacct caaccctgga gctccagaac  
 900  
 cagctggatg agtataagga gaaaaaccgc agggagctcg cagaaatgca aagacagttg  
 960  
 aaggagaaaa cgctggaggc agaaaagtcc cgactgacag ccatgaaaat gcaggatgag  
 1020  
 atgcgtctga tg  
 1032

<210> 3868

<211> 344

<212> PRT

<213> Homo sapiens

<400> 3868

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Arg | Glu | Gly | Glu | Leu | Arg | Lys | Asn | Leu | Glu | Glu | Leu | Phe | Gln | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Lys | Met | Glu | Arg | Glu | Gln | His | Gln | Thr | Glu | Ile | Arg | Asp | Leu | Gln | Asp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gln | Leu | Ser | Glu | Met | His | Asp | Glu | Leu | Asp | Ser | Ala | Lys | Arg | Ser | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp | Arg | Glu | Lys | Gly | Ala | Leu | Ile | Glu | Glu | Leu | Leu | Gln | Ala | Lys | Gln |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Asp | Leu | Gln | Asp | Leu | Leu | Ile | Ala | Lys | Glu | Glu | Gln | Glu | Asp | Leu | Leu |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Arg | Lys | Arg | Glu | Arg | Glu | Leu | Thr | Ala | Leu | Lys | Gly | Ala | Leu | Lys | Glu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Glu | Val | Ser | Ser | His | Asp | Gln | Glu | Met | Asp | Lys | Leu | Lys | Glu | Gln | Tyr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asp | Ala | Glu | Leu | Gln | Ala | Leu | Arg | Glu | Ser | Val | Glu | Glu | Ala | Thr | Lys |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Asn | Val | Glu | Val | Leu | Ala | Ser | Arg | Ser | Asn | Thr | Ser | Glu | Gln | Asp | Gln |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ala | Gly | Thr | Glu | Met | Arg | Val | Lys | Leu | Leu | Gln | Glu | Glu | Asn | Glu | Lys |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Leu | Gln | Gly | Arg | Ser | Glu | Glu | Leu | Glu | Arg | Arg | Val | Ala | Gln | Leu | Gln |
|     |     |     |     | 165 |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Arg | Gln | Ile | Glu | Asp | Leu | Lys | Gly | Asp | Glu | Ala | Lys | Ala | Lys | Glu | Thr |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Leu | Lys | Lys | Tyr | Glu | Gly | Glu | Ile | Arg | Gln | Leu | Glu | Glu | Ala | Leu | Val |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| His | Ala | Arg | Lys | Glu | Glu | Lys | Glu | Ala | Val | Ser | Ala | Arg | Arg | Ala | Leu |
|     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Glu | Asn | Glu | Leu | Glu | Ala | Ala | Gln | Gly | Asn | Leu | Ser | Gln | Thr | Thr | Gln |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Glu | Gln | Lys | Gln | Leu | Ser | Glu | Lys | Leu | Lys | Glu | Glu | Ser | Glu | Gln | Lys |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |  |
| Glu | Gln | Leu | Arg | Arg | Leu | Lys | Asn | Glu | Met | Glu | Asn | Glu | Arg | Trp | His |  |  |
|     |     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |  |  |
| Leu | Gly | Lys | Thr | Ile | Glu | Lys | Leu | Gln | Lys | Glu | Met | Ala | Asp | Ile | Val |  |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |  |
| Glu | Ala | Ser | Arg | Thr | Ser | Thr | Leu | Glu | Leu | Gln | Asn | Gln | Leu | Asp | Glu |  |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |  |
| Tyr | Lys | Glu | Lys | Asn | Arg | Arg | Glu | Leu | Ala | Glu | Met | Gln | Arg | Gln | Leu |  |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |  |
| Lys | Glu | Lys | Thr | Leu | Glu | Ala | Glu | Lys | Ser | Arg | Leu | Thr | Ala | Met | Lys |  |  |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |  |  |
| Met | Gln | Asp | Glu | Met | Arg | Leu | Met |     |     |     |     |     |     |     |     |  |  |
|     |     |     | 340 |     |     |     |     |     |     |     |     |     |     |     |     |  |  |

<210> 3869  
 <211> 1226  
 <212> DNA  
 <213> Homo sapiens

<400> 3869  
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 60  
 tcttcatttg ccctcgtaac gaaaatagat ttttaaagtc ctcaaata caaacatcat  
 120  
 tgatgcacac acattccaga aatgcagagg tatgctgctg ccacggggta ggggtgcggg  
 180  
 agggggcctg gcctcatggc cgcagaccgt gcccagccc gggcctggca ggtagctggc  
 240  
 cactgataaa tgccactggg atcctaggag aagctgggga ccatgcgtga ggtactgaag  
 300  
 gggaccatgg tggatggcat cctgggcact ttgtagcttg tctgagggaagg aggcctctgc  
 360  
 tgccatagaa aagctggaca catgtcacc tggggccctg acatcctaaa atgccccact  
 420  
 gactaccagt cactaggaga aaggtctccg gctatgccct tcccagtgat gcttgcccca  
 480  
 gagtgactgg tcacaggtgg gggacaggtt tgctccagaa accgtaggcc tttcttgtct  
 540  
 ggccccctaa agaggacca agatcaggaa aactccccag tttaaaaaaa tatctgtcca  
 600  
 tctgtatata aaatacctat tattagctgg agttgcacac atgcaggacc aggagagact  
 660  
 gcctgaggtt ctgcctggac cgaaggaggc ctgcgtcaca gcacctctgt gaggggactg  
 720  
 gtgctcctgg gaagtcactt ctcttggtga ccgagctgac acccctcca cttggaaagc  
 780  
 acagggactg agcagggcgg acctgtgctg gagggagacc ctctggtga ggaactatgc  
 840  
 gggccttctg ggcctcagca gctccagccc actcctggcc tggcaggcca cctgcccacc  
 900  
 caccaccca tctgcctctg gccccagtg aagtcagaag aggcaggagc cccgcaggct  
 960  
 gtgagcctgg cgcaggtcgg ctgacagcga gcttctcatc tgctggtgg tagagcggac  
 1020

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<210> 3870

<211> 100

<212> PRT

<213> Homo sapiens

<400> 3870

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| Met | Ala | Ala | Glu | Ala | Phe | Pro | Ser | Asp | Lys | Leu | Gln | Ser | Ala | Gln | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Ile | His | His | Gly | Pro | Leu | Gln | Tyr | Leu | Thr | His | Gly | Pro | Gln | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Leu | Gly | Ser | Gln | Trp | His | Leu | Ser | Val | Ala | Ser | Tyr | Leu | Pro | Gly |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Pro | Gly | Trp | Gly | Thr | Val | Cys | Gly | His | Glu | Ala | Arg | Pro | Pro | Pro | Ala |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Pro | Leu | Pro | Arg | Gly | Ser | Ser | Ile | Pro | Leu | His | Phe | Trp | Asn | Val | Cys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ala | Ser | Met | Met | Phe | Val | Tyr | Leu | Arg | His | Leu | Lys | Ile | Tyr | Phe | Arg |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Tyr | Glu | Gly | Lys |     |     |     |     |     |     |     |     |     |     |     |     |
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<210> 3871

<211> 473

<212> DNA

<213> Homo sapiens

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 <213> Homo sapiens

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<210> 3874

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<400> 3874

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Ser Thr Ser Ser Phe Ser Ser Met Ser Ala Gly Ser Arg Gln Glu Glu
65           70           75           80
Thr Lys Lys Asp Tyr Arg Glu Val Glu Lys Leu Leu Arg Ala Val Ala
          85           90           95
Asp Gly Asp Leu Glu Met Val Arg Tyr Leu Leu Glu Trp Thr Glu Glu
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Asp Leu Glu Asp Ala Glu Asp Thr Val Ser Ala Ala Asp Pro Glu Phe
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Cys His Pro Leu Cys Gln Cys Pro Lys Cys Ala Pro Ala Gln Lys Arg
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Asp Gly Ser Ser Pro Leu His Val Ala Ala Leu His Gly Arg Ala Asp
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Leu Ile Arg Leu Leu Lys His Gly Ala Asn Ala Gly Ala Arg Asn
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Ala Asp Gln Ala Val Pro Leu His Leu Ala Cys Gln Gln Gly His Phe
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Gln Val Val Lys Cys Leu Leu Asp Ser Asn Ala Lys Pro Asn Lys Lys
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225          230          235          240Glu Leu
Val Ala Leu Leu Leu Gln His Gly Ala Ser Ile Asn Ala
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Leu Thr Ile Arg Gly Asn Thr Ala Leu His Glu Ala Val Ile Glu Lys
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<400> 3875

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<210> 3876

<211> 824

<212> PRT

<213> Homo sapiens

<400> 3876

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| Met | Ala | Ala | Ala | Val | Val | Ala | Glu | Gly | Asp | Ser | Asp | Ser | Arg | Pro |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Gln | Glu | Leu | Leu | Val | Ala | Trp | Asn | Thr | Val | Ser | Thr | Gly | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  | Val |
| Pro | Pro | Ala | Ala | Leu | Gly | Leu | Val | Ser | Ser | Arg | Thr | Ser | Gly | Ala |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     | Val |
| Pro | Pro | Lys | Glu | Glu | Glu | Leu | Arg | Ala | Ala | Val | Glu | Val | Leu | Arg |
|     |     |     | 50  |     |     | 55  |     |     |     |     | 60  |     |     | Gly |
| His | Gly | Leu | His | Ser | Val | Leu | Glu | Glu | Trp | Phe | Val | Glu | Val | Leu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |
| Asn | Asp | Leu | Gln | Ala | Asn | Ile | Ser | Pro | Glu | Phe | Trp | Asn | Ala | Ile |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     | 95  | Ser |
| Gln | Cys | Glu | Asn | Ser | Ala | Asp | Glu | Pro | Gln | Cys | Leu | Leu | Leu | Leu |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asp | Ala | Phe | Gly | Leu | Leu | Glu | Ser | Arg | Leu | Asp | Pro | Tyr | Leu | Arg |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     | Ser |
| Leu | Glu | Leu | Leu | Glu | Lys | Trp | Thr | Arg | Leu | Gly | Leu | Leu | Met | Gly |
|     |     |     |     |     |     |     |     |     |     |     |     |     | Thr |     |

|   |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|
| 130   |     | 135 |     | 140 |     |
| Gly Ala Gln Gly Leu Arg Glu Glu Val His Thr Met Leu Arg Gly Val |     |     |     |     |     |
| 145   |     | 150 |     | 155 | 160 |
| Leu Phe Phe Ser Thr Pro Arg Thr Phe Gln Glu Met Ile Gln Arg Leu |     |     |     |     |     |
|   | 165 |     | 170 |     | 175 |
| Tyr Gly Cys Phe Leu Arg Val Tyr Met Gln Ser Lys Arg Lys Gly Glu |     |     |     |     |     |
|   | 180 |     | 185 |     | 190 |
| Gly Gly Thr Asp Pro Glu Leu Glu Gly Glu Leu Asp Ser Arg Tyr Ala |     |     |     |     |     |
|   | 195 |     | 200 |     | 205 |
| Arg Arg Arg Tyr Tyr Arg Leu Leu Gln Ser Pro Leu Cys Ala Gly Cys |     |     |     |     |     |
|   | 210 |     | 215 |     | 220 |
| Ser Ser Asp Lys Gln Gln Cys Trp Cys Arg Gln Ala Leu Glu Gln Phe |     |     |     |     |     |
| 225   |     | 230 |     | 235 | 240 |
| His Gln Leu Ser Gln Val Leu His Arg Leu Ser Leu Leu Glu Arg Val |     |     |     |     |     |
|   | 245 |     | 250 |     | 255 |
| Ser Ala Glu Ala Val Thr Thr Thr Leu His Gln Val Thr Arg Glu Arg |     |     |     |     |     |
|   | 260 |     | 265 |     | 270 |
| Met Glu Asp Arg Cys Arg Gly Glu Tyr Glu Arg Ser Phe Leu Arg Glu |     |     |     |     |     |
|   | 275 |     | 280 |     | 285 |
| Phe His Arg Trp Ile Glu Arg Val Val Gly Trp Leu Gly Lys Val Phe |     |     |     |     |     |
| 290   |     | 295 |     | 300 |     |
| Leu Gln Asp Gly Pro Ala Arg Pro Ala Ser Pro Glu Ala Gly Asn Thr |     |     |     |     |     |
| 305   |     | 310 |     | 315 | 320 |
| Leu Arg Arg Trp Arg Cys His Val Gln Arg Phe Phe Tyr Arg Ile Tyr |     |     |     |     |     |
|   | 325 |     | 330 |     | 335 |
| Ala Ser Leu Arg Ile Glu Glu Leu Phe Ser Ile Val Arg Asp Phe Pro |     |     |     |     |     |
|   | 340 |     | 345 |     | 350 |
| Asp Ser Arg Pro Ala Ile Glu Asp Leu Lys Tyr Cys Leu Glu Arg Thr |     |     |     |     |     |
|   | 355 |     | 360 |     | 365 |
| Asp Gln Arg Gln Gln Leu Leu Val Ser Leu Lys Ala Ala Leu Glu Thr |     |     |     |     |     |
|   | 370 |     | 375 |     | 380 |
| Arg Leu Leu His Pro Gly Val Asn Thr Cys Asp Ile Ile Thr Leu Tyr |     |     |     |     |     |
| 385   |     | 390 |     | 395 | 400 |
| Ile Ser Ala Ile Lys Ala Leu Arg Val Leu Asp Pro Ser Met Val Ile |     |     |     |     |     |
|   | 405 |     | 410 |     | 415 |
| Leu Glu Val Ala Cys Glu Pro Ile Arg Arg Tyr Leu Arg Thr Arg Glu |     |     |     |     |     |
|   | 420 |     | 425 |     | 430 |
| Asp Thr Val Arg Gln Ile Val Ala Gly Leu Thr Gly Asp Ser Asp Gly |     |     |     |     |     |
|   | 435 |     | 440 |     | 445 |
| Thr Gly Asp Leu Ala Val Glu Leu Ser Lys Thr Asp Pro Ala Ser Leu |     |     |     |     |     |
|   | 450 |     | 455 |     | 460 |
| Glu Thr Gly Gln Asp Ser Glu Asp Asp Ser Gly Glu Pro Glu Asp Trp |     |     |     |     |     |
| 465   |     | 470 |     | 475 | 480 |
| Val Pro Asp Pro Val Asp Ala Asp Pro Gly Lys Ser Ser Ser Lys Arg |     |     |     |     |     |
|   | 485 |     | 490 |     | 495 |
| Arg Ser Ser Asp Ile Ile Ser Leu Leu Val Ser Ile Tyr Gly Ser Lys |     |     |     |     |     |
|   | 500 |     | 505 |     | 510 |
| Asp Leu Phe Ile Asn Glu Tyr Arg Ser Leu Leu Ala Asp Arg Leu Leu |     |     |     |     |     |
|   | 515 |     | 520 |     | 525 |
| His Gln Phe Ser Phe Ser Pro Glu Arg Glu Ile Arg Asn Val Glu Leu |     |     |     |     |     |
|   | 530 |     | 535 |     | 540 |
| Leu Lys Leu Arg Phe Gly Glu Ala Pro Met His Phe Cys Glu Val Met |     |     |     |     |     |
| 545   |     | 550 |     | 555 | 560 |
| Leu Lys Asp Met Ala Asp Ser Arg Arg Ile Asn Ala Asn Ile Arg Glu |     |     |     |     |     |

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 Lys Lys Tyr Glu Gln Leu Lys Ala Met Arg Thr Leu Ser Trp Lys His  
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 Pro Val Ala Leu Leu Arg Arg Arg Met Ser Val Trp Leu Gln Gln Gly  
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&lt;210&gt; 3877

&lt;211&gt; 1112

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3877

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&lt;210&gt; 3878

&lt;211&gt; 370

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3878

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Asn | Ser | Met | Lys | His | Glu | Asp | Pro | Ser | Ile | Ile | Ser | Met | Glu | Asp |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gly | Ser | Pro | Tyr | Val | Asn | Gly | Ser | Leu | Gly | Glu | Val | Thr | Pro | Cys | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| His | Ala | Lys | Lys | Ala | Asn | Gly | Pro | Asn | Tyr | Ile | Gln | Pro | Gln | Lys | Arg |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gln | Thr | Thr | Phe | Glu | Ser | Gln | Asp | Arg | Lys | Ala | Val | Ser | Pro | Ser | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Glu | Lys | Arg | Ser | Lys | Asn | Pro | Ile | Ser | Arg | Pro | Leu | Glu | Gly | Lys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Lys | Ser | Leu | Ser | Leu | Ser | Ala | Lys | Thr | His | Asn | Ile | Gly | Phe | Asp | Lys |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Asp | Ser | Cys | His | Ser | Thr | Thr | Lys | Thr | Glu | Ala | Ser | Gln | Glu | Glu | Arg |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Asp | Ser | Ser | Gly | Leu | Thr | Ser | Leu | Lys | Lys | Ser | Pro | Lys | Val | Ser |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Lys | Asp | Thr | Arg | Glu | Ile | Lys | Thr | Asp | Phe | Ser | Leu | Ser | Ile | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asn | Ser | Ser | Asp | Val | Ser | Ala | Lys | Asp | Lys | His | Ala | Glu | Asp | Asn | Glu |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Lys | Arg | Leu | Ala | Ala | Leu | Glu | Ala | Arg | Gln | Lys | Ala | Lys | Glu | Val | Gln |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Lys | Lys | Leu | Val | His | Asn | Ala | Leu | Ala | Asn | Leu | Asp | Gly | His | Pro | Glu |

|            |            |            |            |            |             |
|------------|------------|------------|------------|------------|-------------|
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| 60         | ctccccagcg | aggtcagtc  | cctgcagcac | ctcaaggcca | ttgacctgtc  |
| 120        | ttccaggact | tccttgagca | gcttaccgcc | ctgccggcgc | tgagaccat   |
| 180        | gagaacgaga | tcgtagatgt | gcccgaggag | aagctggccg | ccatgcccagc |
| 240        | atcaacctcc | gcttcaaccc | actcaacgcc | gaggtgcgcg | tgatcgcccc  |
| 300        | aagtttgaca | tgctcatgtc | tccggaaggc | gcaagagccc | ccctacctta  |
| 360        | ctcatgcccc | cccagcaagg | gacagaggcc | acaggcctgg | aaccctggaa  |
| 420        | cccatgggag | gccaagcctg | ggggctgggg | gcgggtgggc | caagcagcac  |
| 480        | gggtgcagct | ggtctggata | gatagcttac | agcagtagtg | ggctctggaa  |
| 540        | aagaggcaag | gtggggcctg | cagcctggac | tcggcactca | cagctgctgt  |
| 600        | gcagatctcc | tgccctctct | gagccttgtc | acttgaaaaa | aacaggaccc  |
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&lt;210&gt; 3880

&lt;211&gt; 116

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3880

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Met | Thr | Thr | Phe | Ser | Gln | Leu | Arg | Asp | Leu | His | Leu | Glu | Gly | Asn |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Phe | Leu | His | Arg | Leu | Pro | Ser | Glu | Val | Ser | Ala | Leu | Gln | His | Leu | Lys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | Ile | Asp | Leu | Ser | Arg | Asn | Gln | Phe | Gln | Asp | Phe | Pro | Glu | Gln | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Thr | Ala | Leu | Pro | Ala | Leu | Glu | Thr | Ile | Asn | Leu | Glu | Glu | Asn | Glu | Ile |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Val | Asp | Val | Pro | Val | Glu | Lys | Leu | Ala | Ala | Met | Pro | Ala | Leu | Arg | Ser |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Ile | Asn | Leu | Arg | Phe | Asn | Pro | Leu | Asn | Ala | Glu | Val | Arg | Val | Ile | Ala |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Pro | Pro | Leu | Ile | Lys | Phe | Asp | Met | Leu | Met | Ser | Pro | Glu | Gly | Ala | Arg |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |
| Ala | Pro | Leu | Pro |     |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     | 115 |     |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 3881

&lt;211&gt; 1393

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3881

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 1393

&lt;210&gt; 3882

&lt;211&gt; 277

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3882

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Leu | Gly | Pro | Trp | Ser | Gln | Tyr | Ala | Pro | Pro | Glu | Trp | Ser | Gln | Gly |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Asp | Ser | Gly | Ala | Lys | Gly | Gly | Lys | Val | Lys | Leu | Leu | Gly | Lys | Pro | Val |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Gln | Met | Pro | Ser | Leu | Asn | Trp | Pro | Glu | Ala | Leu | Pro | Pro | Pro | Pro | Pro |



|   |     |     |
|---|-----|-----|
| 35  | 40  | 45  |
| Ser Cys Glu Leu Ser Cys Leu Glu Gly Pro Glu Glu Glu Leu Glu Gly |     |     |
| 50  | 55  | 60  |
| Ser Ser Glu Pro Glu Glu Trp Cys Pro Pro Met Pro Glu Arg Ser His |     |     |
| 65  | 70  | 75  |
| Leu Thr Glu Pro Ser Ser Ser Gly Gly Trp Leu Val Thr Pro Ser Arg |     |     |
| 85  | 90  | 95  |
| Arg Glu Thr Pro Ser Pro Thr Pro Ser Tyr Gly Gln Gln Ser Thr Ala |     |     |
| 100   | 105 | 110 |
| Thr Leu Thr Pro Ser Pro Pro Asp Pro Pro Gln Pro Pro Thr Asp Met |     |     |
| 115   | 120 | 125 |
| Pro His Leu His Gln Met Pro Arg Arg Val Pro Leu Gly Pro Ser Ser |     |     |
| 130   | 135 | 140 |
| Pro Leu Ser Val Ser Gln Pro Met Leu Gly Ile Arg Glu Ala Arg Pro |     |     |
| 145   | 150 | 155 |
| Ala Gly Leu Gly Ala Gly Pro Ala Ala Ser Pro His Leu Ser Pro Ser |     |     |
| 165   | 170 | 175 |
| Pro Ala Pro Ser Thr Ala Ser Ser Ala Pro Gly Arg Thr Trp Gln Gly |     |     |
| 180   | 185 | 190 |
| Asn Gly Glu Met Thr Pro Pro Leu Gln Gly Pro Arg Ala Arg Phe Arg |     |     |
| 195   | 200 | 205 |
| Lys Lys Pro Lys Ala Leu Pro Tyr Arg Arg Glu Asn Ser Pro Gly Asp |     |     |
| 210   | 215 | 220 |
| Leu Pro Pro Pro Pro Leu Pro Pro Pro Glu Xaa Arg Gly Glu Leu Gly |     |     |
| 225   | 230 | 235 |
| Pro Arg Ala Glu Gly Ser Arg Gln His Val Leu Pro Gly Ala Gly Ala |     |     |
| 245   | 250 | 255 |
| Gln Trp Gly Glu Glu Ser Gly Pro Gly Arg Ala Pro Gly Ser Pro Ala |     |     |
| 260   | 265 | 270 |
| Gly Ala Pro Pro Arg   |     |     |
| 275   |     |     |

&lt;210&gt; 3883

&lt;211&gt; 943

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3883

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480

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 <212> PRT  
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<211> 277

<212> PRT

<213> Homo sapiens

<400> 3886

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Cys | Cys | Ser | Leu | Leu | Ala | Thr | Gly | Gly | Ala | Asp | Arg | Leu | Ile | His |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Trp | Asn | Val | Val | Gly | Ser | Arg | Leu | Glu | Ala | Asn | Gln | Thr | Leu | Glu |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Gly | Ala | Gly | Gly | Ser | Ile | Thr | Ser | Val | Asp | Phe | Asp | Pro | Ser | Gly | Tyr |
|     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Gln | Val | Leu | Ala | Ala | Thr | Tyr | Asn | Gln | Ala | Ala | Gln | Leu | Trp | Lys | Val |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Gly | Glu | Ala | Gln | Ser | Lys | Glu | Thr | Leu | Ser | Gly | His | Lys | Asp | Lys | Val |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Thr | Ala | Ala | Lys | Phe | Lys | Leu | Thr | Arg | His | Gln | Ala | Val | Thr | Gly | Ser |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Arg | Asp | Arg | Thr | Val | Lys | Glu | Trp | Asp | Leu | Gly | Arg | Ala | Tyr | Cys | Ser |
|     | 100 |     |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Thr | Ile | Asn | Val | Leu | Ser | Tyr | Cys | Asn | Asp | Val | Val | Xaa | Trp | Gly |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Pro | Tyr | His | His | Xaa | Ser | Gly | His | Asn | Asp | Gln | Lys | Ile | Arg | Phe | Trp |
|     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |
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 1680  
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 1687

&lt;210&gt; 3892

&lt;211&gt; 179

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3892

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Arg | Val | Leu | Asn | Ile | Trp | Pro | Tyr | Pro | Gln | Gln | Glu | Cys | Leu | His |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Pro | Asn | Trp | Gln | His | Gln | Thr | Gly | His | Gly | Thr | Glu | Ser | Ser | Gly |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Gly | Leu | Phe | Ala | Leu | Cys | Thr | Leu | Asp | Gly | Thr | Leu | Lys | Leu | Met |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Glu | Glu | Met | Glu | Glu | Ala | Asp | Lys | Leu | Leu | Trp | Ser | Val | Gln | Val | Asp |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| His | Gln | Leu | Phe | Ala | Leu | Glu | Lys | Leu | Asp | Val | Thr | Gly | Asn | Gly | His |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Glu | Glu | Val | Val | Ala | Cys | Ala | Trp | Asp | Gly | Gln | Thr | Tyr | Ile | Ile | Asp |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| His | Asn | Arg | Thr | Val | Val | Arg | Phe | Gln | Val | Asp | Glu | Asn | Ile | Arg | Ala |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |
| Phe | Cys | Ala | Gly | Leu | Tyr | Ala | Cys | Lys | Glu | Gly | Arg | Asn | Ser | Pro | Cys |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Leu | Val | Tyr | Val | Thr | Phe | Asn | Gln | Lys | Ile | Tyr | Val | Tyr | Trp | Glu | Val |

|                     |                         |                         |     |     |
|---------------------|-------------------------|-------------------------|-----|-----|
| 130                 |                         | 135                     |     | 140 |
| Gln Leu Glu Arg Met | Glu Ser Thr Asn Leu Val | Lys Leu Leu Glu Thr     |     |     |
| 145                 | 150                     | 155                     | 160 |     |
| Lys Pro Ser Thr Thr | Ala Cys Cys Arg Ser     | Trp Ala Trp Ile Leu Thr |     |     |
|                     | 165                     | 170                     | 175 |     |
| Thr Ser Leu         |                         |                         |     |     |

<210> 3893  
 <211> 1591  
 <212> DNA  
 <213> Homo sapiens

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 120  
 aagagtaaag aaaattgtgt tgtggataac atcaaagtgt gcagtaatga cactgggagt  
 180  
 ggaaaattca agtgtgtttg catcactatg agagtgcctc ggaaccaaac tatcggagat  
 240  
 aaatttgcca gtcgccatgg gcagaagggc attttaagca gattgtggcc ggctgaggac  
 300  
 atgcctttta ctgagagtgg gatgggtcca gacattctgt tcaatcccca tggttttcca  
 360  
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 420  
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 480  
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 540  
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 840  
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 900  
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 1440  
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 1500  
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<210> 3894

<211> 334

<212> PRT

<213> Homo sapiens

<400> 3894

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Val | Leu | Gln | Lys | Leu | Asp | Asp | Asp | Gly | Leu | Pro | Phe | Ile | Gly | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Lys | Leu | Gln | Tyr | Gly | Asp | Pro | Tyr | Tyr | Ser | Tyr | Leu | Asn | Leu | Asn | Thr |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Glu | Ser | Phe | Val | Met | Tyr | Tyr | Lys | Ser | Lys | Glu | Asn | Cys | Val | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp | Asn | Ile | Lys | Val | Cys | Ser | Asn | Asp | Thr | Gly | Ser | Gly | Lys | Phe | Lys |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Cys | Val | Cys | Ile | Thr | Met | Arg | Val | Pro | Arg | Asn | Pro | Thr | Ile | Gly | Asp |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Lys | Phe | Ala | Ser | Arg | His | Gly | Gln | Lys | Gly | Ile | Leu | Ser | Arg | Leu | Trp |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Pro | Ala | Glu | Asp | Met | Pro | Phe | Thr | Glu | Ser | Gly | Met | Val | Pro | Asp | Ile |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Phe | Asn | Pro | His | Gly | Phe | Pro | Ser | Arg | Met | Thr | Ile | Gly | Met | Leu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ile | Glu | Ser | Met | Ala | Gly | Lys | Ser | Ala | Ala | Leu | His | Gly | Leu | Cys | His |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asp | Ala | Thr | Pro | Phe | Ile | Phe | Ser | Glu | Glu | Asn | Ser | Ala | Leu | Glu | Tyr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Phe | Gly | Glu | Met | Leu | Lys | Ala | Ala | Gly | Tyr | Asn | Phe | Tyr | Gly | Thr | Glu |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Arg | Leu | Tyr | Ser | Gly | Ile | Ser | Gly | Leu | Glu | Leu | Glu | Ala | Asp | Ile | Phe |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ile | Gly | Val | Val | Tyr | Tyr | Gln | Arg | Leu | Arg | His | Met | Val | Ser | Asp | Lys |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |
| Phe | Gln | Val | Arg | Thr | Thr | Gly | Ala | Arg | Asp | Arg | Val | Thr | Asn | Gln | Pro |
|     | 210 |     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |
| Ile | Gly | Gly | Arg | Asn | Val | Gln | Gly | Gly | Ile | Arg | Phe | Gly | Glu | Met | Glu |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     | 240 |     |
| Arg | Asp | Ala | Leu | Leu | Ala | His | Gly | Thr | Ser | Phe | Leu | Leu | His | Asp | Arg |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Leu | Phe | Asn | Cys | Ser | Asp | Arg | Ser | Val | Ala | His | Val | Cys | Val | Lys | Cys |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Gly | Ser | Leu | Leu | Ser | Pro | Leu | Leu | Glu | Lys | Pro | Pro | Pro | Ser | Trp | Ser |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Ala | Met | Arg | Asn | Arg | Lys | Tyr | Asn | Cys | Thr | Leu | Cys | Ser | Arg | Ser | Asp |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Thr | Ile | Asp | Thr | Val | Ser | Val | Pro | Tyr | Val | Phe | Arg | Tyr | Phe | Val | Ala |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Glu | Leu | Ala | Ala | Met | Asn | Ile | Lys | Val | Lys | Leu | Asp | Val | Val |     |     |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     |     |

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<210> 3895
<211> 1227
<212> DNA
<213> Homo sapiens
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120
gtgaggaggc aagagcagcc cagcattgag agtacatctc cgatttcaag aactgatgaa
180
attagaaaaa acacctacag aacattggat agcctggagc agaccattaa acagctcgaa
240
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300
gtattctgtt caagttcatc ccacatagcc caagaggcct ctccccgacc cttgctagtt
360
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480
cccggaaccc tggacaaacc cggaagcag tccaaactgc aggatccccg ccaatatcgt
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caggctaatt gaagtgctaa gaaatctggt ggggacttta agcctacttc ccctcctta
600
cctgcttcta agattccagc cttttctccc agctctggga aaagcagttc tctgccctct
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960
actcccagcc tcaccagcta caaggcacag aatggaagtt caagcaaagc caccatcc
1020
acagcaaaag aaacctctta aagggtcaaat cctattaggc acaagtcgga gttacattta
1080
aaaaaaatta acagtctaca acaactgttt tcacaagaga atgtaacata ttgctgtatc
1140

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gtttgaggct taatgctaaa tatgtgctaa atactggatt aatagatttc agtaaagctc  
1200

gttcaaaaaa aaaaaaaaaa aaaaaaa  
1227

<210> 3896

<211> 346

<212> PRT

<213> Homo sapiens

<400> 3896

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Thr | Leu | Arg | Val | Val | Val | Tyr | Glu | Glu | Glu | Glu | Glu | Asp | Gly | Thr |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Leu | Lys | Gln | His | Lys | Glu | Ala | Lys | Arg | Phe | Glu | Ile | Ala | Arg | Ser | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Pro | Glu | Asp | Thr | Pro | Glu | Asn | Thr | Val | Arg | Arg | Gln | Glu | Gln | Pro | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ile | Glu | Ser | Thr | Ser | Pro | Ile | Ser | Arg | Thr | Asp | Glu | Ile | Arg | Lys | Asn |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Thr | Tyr | Arg | Thr | Leu | Asp | Ser | Leu | Glu | Gln | Thr | Ile | Lys | Gln | Leu | Glu |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |
| Asn | Thr | Ile | Ser | Glu | Met | Ser | Pro | Lys | Ala | Leu | Val | Asp | Thr | Ser | Cys |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Ser | Ser | Asn | Arg | Asp | Ser | Val | Ala | Ser | Ser | Ser | His | Ile | Ala | Gln | Glu |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ala | Ser | Pro | Arg | Pro | Leu | Leu | Val | Pro | Asp | Glu | Gly | Pro | Thr | Ala | Leu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Glu | Pro | Pro | Thr | Ser | Ile | Pro | Ser | Ala | Ser | Arg | Lys | Gly | Ser | Ser | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ala | Pro | Gln | Thr | Ser | Arg | Met | Pro | Val | Pro | Met | Ser | Ala | Lys | Asn | Arg |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Pro | Gly | Thr | Leu | Asp | Lys | Pro | Gly | Lys | Gln | Ser | Lys | Leu | Gln | Asp | Pro |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Arg | Gln | Tyr | Arg | Gln | Ala | Asn | Gly | Ser | Ala | Lys | Lys | Ser | Gly | Gly | Asp |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Phe | Lys | Pro | Thr | Ser | Pro | Ser | Leu | Pro | Ala | Ser | Lys | Ile | Pro | Ala | Leu |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ser | Pro | Ser | Ser | Gly | Lys | Ser | Ser | Ser | Leu | Pro | Ser | Ser | Ser | Gly | Asp |
|     | 210 |     |     |     |     | 215 |     |     |     | 220 |     |     |     |     |     |
| Ser | Ser | Asn | Leu | Pro | Asn | Pro | Pro | Ala | Thr | Lys | Pro | Ser | Ile | Ala | Ser |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     | 240 |     |
| Asn | Pro | Leu | Ser | Pro | Gln | Thr | Gly | Pro | Pro | Ala | His | Ser | Ala | Ser | Leu |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Ile | Pro | Ser | Val | Ser | Asn | Gly | Ser | Leu | Lys | Phe | Gln | Ser | Leu | Thr | His |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Thr | Gly | Lys | Gly | His | His | Leu | Ser | Phe | Ser | Pro | Gln | Ser | Gln | Asn | Gly |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Arg | Ala | Pro | Pro | Pro | Leu | Ser | Phe | Ser | Ser | Ser | Pro | Pro | Ser | Pro | Ala |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Ser | Ser | Val | Ser | Leu | Asn | Gln | Gly | Ala | Lys | Gly | Thr | Arg | Thr | Ile | His |
| 305 |     |     |     | 310 |     |     |     |     |     | 315 |     |     |     | 320 |     |
| Thr | Pro | Ser | Leu | Thr | Ser | Tyr | Lys | Ala | Gln | Asn | Gly | Ser | Ser | Ser | Lys |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |
| Ala | Thr | Pro | Ser | Thr | Ala | Lys | Glu | Thr | Ser |     |     |     |     |     |     |

340

345

<210> 3897  
 <211> 366  
 <212> DNA  
 <213> Homo sapiens

<400> 3897  
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 360  
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 366

<210> 3898  
 <211> 111  
 <212> PRT  
 <213> Homo sapiens

<400> 3898  
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 His Pro Arg Phe Val His Glu Trp Lys Ala Met Leu Thr Ala Ala Gln  
 35 40 45  
 Cys Val Gln Asp Val Ser Glu Thr Pro Val Pro Leu Pro Val Pro Leu  
 50 55 60  
 Ser Val Pro Leu Ser Thr Ser Val Thr Ser Ser Leu Arg Gly Ser His  
 65 70 75 80  
 Pro Thr Leu Cys His Cys His Ile Phe Leu Cys Ala Gln Pro Leu Pro  
 85 90 95  
 Pro Pro Glu Thr Phe Leu Glu Ile Ser Lys Cys Asn Ser Arg Ser  
 100 105 110

<210> 3899  
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 <212> DNA  
 <213> Homo sapiens

<400> 3899  
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 120

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 180  
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 240  
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 420  
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<210> 3900

<211> 249

<212> PRT

<213> Homo sapiens

<400> 3900

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Asn | Gly | Asn | Gln | Pro | Trp | Glu | Ala | Arg | Lys | Arg | Pro | Gln | Arg | Trp |
| 1   |     |     | 5   |     |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Ser | Glu | Arg | Arg | Glu | Val | Arg | Val | Pro | Pro | Pro | His | Leu | Gln | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Arg | Ser | Gly | Leu | Glu | Pro | Gly | Thr | Phe | Arg | Lys | Met | Ala | Ala | Ala |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Arg | Pro | Ser | Leu | Gly | Arg | Val | Leu | Pro | Gly | Ser | Ser | Val | Leu | Phe | Leu |
|     |     |     | 50  |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Cys | Asp | Met | Gln | Glu | Lys | Phe | Arg | His | Asn | Ile | Ala | Tyr | Phe | Pro | Gln |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ile | Val | Ser | Val | Ala | Ala | Arg | Met | Leu | Lys | Val | Ala | Arg | Leu | Leu | Glu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Val | Pro | Val | Met | Leu | Thr | Glu | Gln | Tyr | Pro | Gln | Gly | Leu | Gly | Pro | Thr |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 100 |     | 105 |     | 110 |     |     |     |     |     |     |     |     |     |     |
| Val | Pro | Glu | Leu | Gly | Thr | Xaa | Gly | Pro | Ser | Ala | Ala | Gly | Gln | Asp | Leu |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |
| Leu | Gln | His | Gly | Ala | Cys | Leu | Gln | Gln | Glu | Leu | Asp | Ser | Arg | Pro | Gln |
|     | 130 |     |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |
| Leu | Arg | Ser | Val | Leu | Leu | Cys | Gly | Ile | Glu | Ala | Gln | Ala | Cys | Ile | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Asn | Thr | Thr | Leu | Asp | Leu | Leu | Asp | Arg | Gly | Leu | Gln | Val | His | Val | Val |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     | 175 |     |     |
| Val | Asp | Ala | Cys | Ser | Ser | Arg | Ser | Gln | Val | Asp | Arg | Leu | Val | Ala | Leu |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     | 190 |     |     |     |
| Ala | Arg | Met | Arg | Gln | Ser | Gly | Ala | Phe | Leu | Ser | Thr | Ser | Glu | Gly | Leu |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Ile | Leu | Gln | Leu | Val | Gly | Asp | Ala | Val | His | Pro | Gln | Phe | Lys | Glu | Ile |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gln | Lys | Leu | Ile | Lys | Glu | Pro | Ala | Pro | Asp | Ser | Gly | Leu | Leu | Gly | Leu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Phe | Gln | Gly | Gln | Asn | Ser | Leu | Leu | His |     |     |     |     |     |     |     |
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&lt;210&gt; 3901

&lt;211&gt; 1287

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3901

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| Met | Leu | Leu | Leu | Leu | Val | Leu | Lys | Leu | Met | Arg | Asp | His | Val | Pro | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | His | Pro | Glu | Met | Pro | Pro | Gly | Val | Arg | Leu | Ser | Arg | Gly | Leu | Val |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Trp | Ala | Ala | Thr | Thr | Ala | Arg | Asn | Ala | Leu | Val | Val | Ser | Phe | Ala | Ala |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Val | Ala | Tyr | Ser | Phe | Glu | Val | Thr | Gly | Tyr | Gln | Pro | Phe | Ile | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Thr | Gly | Glu | Thr | Ala | Glu | Gly | Leu | Pro | Pro | Val | Arg | Ile | Pro | Pro | Phe |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ser | Val | Thr | Thr | Ala | Asn | Gly | Thr | Ile | Ser | Phe | Thr | Glu | Met | Val | Gln |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Asp | Met | Gly | Ala | Gly | Leu | Ala | Val | Val | Pro | Leu | Met | Gly | Leu | Leu | Glu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Ile | Ala | Val | Ala | Lys | Ala | Phe | Ala | Ser | Gln | Asn | Asn | Tyr | Arg | Ile |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Asp | Ala | Asn | Gln | Glu | Leu | Leu | Ala | Ile | Gly | Leu | Thr | Asn | Met | Leu | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Leu | Val | Ser | Ser | Tyr | Pro | Val | Thr | Gly | Ser | Phe | Gly | Arg | Thr | Ala |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Val | Asn | Ala | Gln | Ser | Gly | Val | Cys | Thr | Pro | Ala | Gly | Gly | Leu | Val | Thr |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Gly | Val | Leu | Val | Leu | Leu | Ser | Leu | Asp | Tyr | Leu | Thr | Ser | Leu | Phe | Tyr |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Tyr | Ile | Pro | Lys | Ser | Ala | Leu | Ala | Ala | Val | Ile | Ile | Met | Ala | Val | Ala |
|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Pro | Leu | Phe | Asp | Thr | Lys | Ile | Phe | Arg | Thr | Leu | Trp | Arg | Val | Lys | Arg |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Leu | Asp | Leu | Leu | Pro | Leu | Cys | Val | Thr | Phe | Leu | Leu | Cys | Phe | Trp | Glu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Val | Gln | Tyr | Gly | Ile | Leu | Ala | Gly | Ala | Leu | Val | Ser | Leu | Leu | Met | Leu |

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 Leu His Ser Ala Ala Arg Pro Glu Thr Lys Val Ser Glu Gly Pro Val  
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 Leu Val Leu Gln Pro Ala Ser Gly Leu Ser Phe Pro Val Leu Cys Pro  
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&lt;210&gt; 3903

&lt;211&gt; 598

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3903

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&lt;210&gt; 3904

&lt;211&gt; 199

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3904

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 His Asn Ala Gly Ile Ser Ser Cys Gly Arg Thr Arg Glu Ala Phe Asn  
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|   |     |  |     |  |     |
|---|-----|--|-----|--|-----|
|   | 85  |  | 90  |  | 95  |
| Gln Ser Ala Met Leu Gln Leu Asp Tyr Gly Asp Thr Val Trp Leu Arg |     |  |     |  |     |
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| Leu His Gly Ala Pro Gln Tyr Ala Leu Gly Ala                     |     |  |     |  |     |
|   | 115 |  | 120 |  |     |

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&lt;213&gt; Homo sapiens

&lt;400&gt; 3907

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<400> 3908

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| Ala | Gly | Cys | Gly | Gly | Leu | Ala | Arg | Leu | Ser | Val | Pro | Cys | Trp | Arg | Ile |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Trp | Pro | Gln | Arg | Ala | Ala | Lys | Ile | Ala | Gly | Pro | Gly | Arg | Lys | Arg | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Pro | Asp | Pro | Asp | Ala | Val | Ala | Asp | Pro | Gly | Ala | Leu | Trp | Leu | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Thr | Lys | Arg | Leu | Lys | Met | Ser | Gly | Gly | Ala | Ser | Ala | Thr | Gly | Pro | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Arg | Gly | Pro | Pro | Gly | Leu | Glu | Asp | Thr | Thr | Ser | Lys | Lys | Lys | Gln | Lys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Asp | Arg | Ala | Asn | Gln | Glu | Ser | Lys | Asp | Gly | Asp | Pro | Arg | Lys | Glu | Thr |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gly | Ser | Arg | Tyr | Val | Ala | Gln | Ala | Gly | Leu | Glu | Pro | Leu | Ala | Ser | Gly |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asp | Pro | Ser | Ala | Ser | Ala | Ser | His | Ala | Ala | Gly | Ile | Thr | Gly | Ser | Arg |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |
| His | Arg | Thr | Arg | Leu | Phe | Phe | Pro | Ser | Ser | Ser | Gly | Ser | Ala | Ser | Thr |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Pro | Gln | Glu | Glu | Gln | Thr | Lys | Glu | Gly | Ala | Cys | Glu | Asp | Pro | His | Asp |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Leu | Leu | Ala | Thr | Pro | Thr | Pro | Glu | Leu | Leu | Asp | Trp | Arg | Gln | Ser |     |
|     |     |     |     | 165 |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Ala | Glu | Glu | Val | Ile | Val | Lys | Leu | Arg | Val | Gly | Val | Gly | Pro | Leu | Gln |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Leu | Glu | Asp | Val | Asp | Ala | Ala | Phe | Thr | Asp | Thr | Asp | Cys | Val | Val | Arg |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Phe | Ala | Gly | Gly | Gln | Gln | Trp | Gly | Gly | Val | Phe | Tyr | Ala | Glu | Ile | Lys |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ser | Ser | Cys | Ala | Lys | Val | Gln | Thr | Arg | Lys | Gly | Ser | Leu | Leu | His | Leu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Thr | Leu | Pro | Lys | Lys | Val | Pro | Met | Leu | Thr | Trp | Pro | Ser | Leu | Leu | Val |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     |     | 255 |     |     |
| Glu | Ala | Asp | Glu | Gln | Leu | Cys | Ile | Pro | Pro | Leu | Asn | Ser | Gln | Thr | Cys |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Leu | Leu | Gly | Ser | Glu | Glu | Asn | Leu | Ala | Pro | Leu | Ala | Gly | Glu | Lys | Ala |
|     |     | 275 |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Val | Pro | Pro | Gly | Asn | Asp | Pro | Val | Ser | Pro | Ala | Met | Val | Arg | Ser | Arg |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Asn | Pro | Gly | Lys | Asp | Asp | Cys | Ala | Lys | Glu | Glu | Met | Ala | Val | Ala | Ala |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Asp | Ala | Ala | Thr | Leu | Val | Asp | Gly | Lys | Glu | Pro | Glu | Ser | Met | Val | Asn |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     | 335 |     |     |
| Leu | Ala | Phe | Val | Lys | Asn | Asp | Ser | Tyr | Glu | Lys | Gly | Pro | Asp | Ser | Val |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Val | Val | His | Val | Tyr | Val | Lys | Glu | Ile | Cys | Arg | Asp | Thr | Ser | Arg | Val |
|     |     | 355 |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |
| Leu | Phe | Arg | Glu | Gln | Asp | Phe | Thr | Leu | Ile | Phe | Gln | Thr | Arg | Asp | Gly |

|                         |                         |                     |
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| Asn Phe Leu Arg Leu His | Pro Gly Cys Gly Pro     | His Thr Thr Phe Arg |
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| Trp Gln Val Lys Leu Arg | Asn Leu Ile Glu Pro     | Glu Gln Cys Thr Phe |
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| Cys Phe Thr Ala Ser Arg | Ile Asp Ile Cys Leu Arg | Lys Arg Gln Ser     |
| 420                     | 425                     | 430                 |
| Gln Arg Trp Gly Gly Leu | Glu Ala Pro Ala Ala Arg | Val Gly Gly Ala     |
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| Lys Val Ala Val Pro Thr | Gly Pro Thr Pro Leu Asp | Ser Thr Pro Pro     |
| 450                     | 455                     | 460                 |
| Gly Gly Ala Pro His Pro | Leu Thr Gly Gln Glu Glu | Ala Arg Ala Val     |
| 465                     | 470                     | 475                 |
| Glu Lys Asp Lys Ser Lys | Ala Arg Ser Glu Asp Thr | Gly Leu Asp Ser     |
| 485                     | 490                     | 495                 |
| Val Ala Thr Arg Thr Pro | Met Glu His Val Thr Pro | Lys Pro Glu Thr     |
| 500                     | 505                     | 510                 |
| His Leu Ala Ser Pro Lys | Pro Thr Cys Met Val Pro | Pro Met Pro His     |
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| Ser Pro Val Ser Gly Asp | Ser Val Glu Glu Glu Glu | Glu Glu Glu Lys     |
| 530                     | 535                     | 540                 |
| Lys Val Cys Leu Pro Gly | Phe Thr Gly Leu Val Asn | Leu Gly Asn Thr     |
| 545                     | 550                     | 555                 |
| Cys Phe Met Asn Ser Val | Ile Gln Ser Leu Ser Asn | Thr Arg Glu Leu     |
| 565                     | 570                     | 575                 |
| Arg Asp Phe Phe His Asp | Arg Ser Phe Glu Ala Glu | Ile Asn Tyr Asn     |
| 580                     | 585                     | 590                 |
| Asn Pro Leu Gly Thr Gly | Gly Arg Leu Ala Ile Gly | Phe Ala Val Leu     |
| 595                     | 600                     | 605                 |
| Leu Arg Ala Leu Trp Lys | Gly Thr His His Ala Phe | Gln Pro Ser Lys     |
| 610                     | 615                     | 620                 |
| Leu Lys Ala Ile Val Ala | Ser Lys Ala Ser Gln Phe | Thr Gly Tyr Ala     |
| 625                     | 630                     | 635                 |
| Gln His Asp Ala Gln Glu | Phe Met Ala Phe Leu Leu | Asp Gly Leu His     |
| 645                     | 650                     | 655                 |
| Glu Asp Leu Asn Arg Ile | Gln Asn Lys Pro Tyr Thr | Glu Thr Val Asp     |
| 660                     | 665                     | 670                 |
| Ser Asp Gly Arg Pro Asp | Glu Val Val Ala Glu Glu | Ala Trp Gln Arg     |
| 675                     | 680                     | 685                 |
| His Lys Met Arg Asn Asp | Ser Phe Ile Val Asp Leu | Phe Gln Gly Gln     |
| 690                     | 695                     | 700                 |
| Tyr Lys Ser Lys Leu Val | Cys Pro Val Cys Ala Lys | Val Ser Ile Thr     |
| 705                     | 710                     | 715                 |
| Phe Asp Pro Phe Leu Tyr | Leu Pro Val Pro Leu Pro | Gln Lys Gln Lys     |
| 725                     | 730                     | 735                 |
| Val Leu Pro Val Phe Tyr | Phe Ala Arg Glu Pro His | Ser Lys Pro Ile     |
| 740                     | 745                     | 750                 |
| Lys Phe Leu Val Ser Val | Ser Lys Glu Asn Ser Thr | Ala Ser Glu Val     |
| 755                     | 760                     | 765                 |
| Leu Asp Ser Leu Ser Gln | Ser Val His Val Lys Pro | Glu Asn Leu Arg     |
| 770                     | 775                     | 780                 |
| Leu Ala Glu Val Ile Lys | Asn Arg Phe His Arg Val | Phe Leu Pro Ser     |
| 785                     | 790                     | 795                 |
| His Ser Leu Asp Thr Val | Ser Pro Ser Asp Thr Leu | Leu Cys Phe Glu     |

|     |     |     |     |      |     |     |     |     |      |     |     |      |      |     |      |  |  |
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|     |     |     |     | 805  |     |     |     |     | 810  |     |     |      |      | 815 |      |  |  |
| Leu | Leu | Ser | Ser | Glu  | Leu | Ala | Lys | Glu | Arg  | Val | Val | Val  | Leu  | Glu | Val  |  |  |
|     |     |     |     | 820  |     |     |     |     | 825  |     |     |      |      | 830 |      |  |  |
| Gln | Gln | Arg | Pro | Gln  | Val | Pro | Ser | Val | Pro  | Ile | Ser | Lys  | Cys  | Ala | Ala  |  |  |
|     |     |     |     | 835  |     |     |     |     | 840  |     |     |      | 845  |     |      |  |  |
| Cys | Gln | Arg | Lys | Gln  | Gln | Ser | Glu | Asp | Glu  | Lys | Leu | Lys  | Arg  | Cys | Thr  |  |  |
|     |     |     |     | 850  |     |     |     |     | 855  |     |     |      | 860  |     |      |  |  |
| Arg | Cys | Tyr | Arg | Val  | Gly | Tyr | Cys | Asn | Gln  | Leu | Cys | Gln  | Lys  | Thr | His  |  |  |
|     |     |     |     |      | 870 |     |     |     |      |     |     |      | 875  |     | 880  |  |  |
| Trp | Pro | Asp | His | Lys  | Gly | Leu | Cys | Arg | Pro  | Glu | Asn | Ile  | Gly  | Tyr | Pro  |  |  |
|     |     |     |     | 885  |     |     |     |     |      |     |     |      | 890  |     | 895  |  |  |
| Phe | Leu | Val | Ser | Val  | Pro | Ala | Ser | Arg | Leu  | Thr | Tyr | Ala  | Arg  | Leu | Ala  |  |  |
|     |     |     |     | 900  |     |     |     |     | 905  |     |     |      | 910  |     |      |  |  |
| Gln | Leu | Leu | Glu | Gly  | Tyr | Ala | Arg | Tyr | Ser  | Val | Ser | Val  | Phe  | Gln | Pro  |  |  |
|     |     |     |     | 915  |     |     |     |     | 920  |     |     |      | 925  |     |      |  |  |
| Pro | Phe | Gln | Pro | Gly  | Arg | Met | Ala | Leu | Glu  | Ser | Gln | Ser  | Pro  | Gly | Cys  |  |  |
|     |     |     |     | 930  |     |     |     |     | 935  |     |     |      | 940  |     |      |  |  |
| Thr | Thr | Leu | Leu | Ser  | Thr | Gly | Ser | Leu | Glu  | Ala | Gly | Asp  | Ser  | Glu | Arg  |  |  |
|     |     |     |     |      | 950 |     |     |     |      |     |     | 955  |      |     | 960  |  |  |
| Asp | Pro | Ile | Gln | Pro  | Pro | Glu | Leu | Gln | Leu  | Val | Thr | Pro  | Met  | Ala | Glu  |  |  |
|     |     |     |     | 965  |     |     |     |     |      |     |     | 970  |      |     | 975  |  |  |
| Gly | Asp | Thr | Gly | Leu  | Pro | Arg | Val | Trp | Ala  | Ala | Pro | Asp  | Arg  | Gly | Pro  |  |  |
|     |     |     |     | 980  |     |     |     |     | 985  |     |     |      | 990  |     |      |  |  |
| Val | Pro | Ser | Thr | Ser  | Gly | Ile | Ser | Ser | Glu  | Met | Leu | Ala  | Ser  | Gly | Pro  |  |  |
|     |     |     |     | 995  |     |     |     |     | 1000 |     |     |      | 1005 |     |      |  |  |
| Ile | Glu | Val | Gly | Ser  | Leu | Pro | Ala | Gly | Glu  | Arg | Val | Ser  | Arg  | Pro | Glu  |  |  |
|     |     |     |     | 1010 |     |     |     |     | 1015 |     |     |      | 1020 |     |      |  |  |
| Ala | Ala | Val | Pro | Gly  | Tyr | Gln | His | Pro | Ser  | Glu | Ala | Met  | Asn  | Ala | His  |  |  |
|     |     |     |     | 1025 |     |     |     |     |      |     |     |      | 1030 |     |      |  |  |
| Thr | Pro | Gln | Phe | Phe  | Ile | Tyr | Lys | Ile | Asp  | Ser | Ser | Asn  | Arg  | Glu | Gln  |  |  |
|     |     |     |     | 1045 |     |     |     |     |      |     |     |      | 1050 |     | 1055 |  |  |
| Arg | Leu | Glu | Asp | Lys  | Gly | Asp | Thr | Pro | Leu  | Glu | Leu | Gly  | Asp  | Asp | Cys  |  |  |
|     |     |     |     | 1060 |     |     |     |     | 1065 |     |     |      | 1070 |     |      |  |  |
| Ser | Leu | Ala | Leu | Val  | Trp | Arg | Asn | Asn | Glu  | Arg | Leu | Gln  | Glu  | Phe | Val  |  |  |
|     |     |     |     | 1075 |     |     |     |     | 1080 |     |     |      | 1085 |     |      |  |  |
| Leu | Val | Ala | Ser | Lys  | Glu | Leu | Glu | Cys | Ala  | Glu | Asp | Pro  | Gly  | Ser | Ala  |  |  |
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| Gly | Glu | Ala | Ala | Arg  | Ala | Gly | His | Phe | Thr  | Leu | Asp | Gln  | Cys  | Leu | Asn  |  |  |
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&lt;211&gt; 2704

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3909

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&lt;211&gt; 9121

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3911

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| Glu | Ser | Val | Pro | Leu | Gly | Tyr | Leu | Val | Leu | His | Val | Gln | Ala | Ile | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Asp | Ala | Gly | Asp | Asn | Ala | Arg | Leu | Glu | Tyr | Arg | Leu | Ala | Gly | Val |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | His | Asp | Phe | Pro | Phe | Thr | Ile | Asn | Asn | Gly | Thr | Gly | Trp | Ile | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Ala | Ala | Glu | Leu | Asp | Arg | Glu | Glu | Val | Asp | Phe | Tyr | Ser | Phe | Gly |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Val | Glu | Ala | Arg | Asp | His | Gly | Thr | Pro | Ala | Leu | Thr | Ala | Ser | Ala | Ser |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Val | Ser | Val | Thr | Val | Leu | Asp | Val | Asn | Asp | Asn | Asn | Pro | Thr | Phe | Thr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gln | Pro | Glu | Tyr | Thr | Val | Arg | Leu | Asn | Glu | Asp | Ala | Ala | Val | Gly | Thr |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Ser | Val | Val | Thr | Val | Ser | Ala | Val | Asp | Arg | Asp | Ala | His | Ser | Val | Ile |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Thr | Tyr | Gln | Ile | Thr | Ser | Gly | Asn | Thr | Arg | Asn | Arg | Phe | Ser | Ile | Thr |
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| Ser | Gln | Ser | Gly | Gly | Gly | Leu | Val | Ser | Leu | Ala | Leu | Pro | Leu | Asp | Tyr |
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| Lys | Leu | Glu | Arg | Gln | Tyr | Val | Leu | Ala | Val | Thr | Ala | Ser | Asp | Gly | Thr |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Arg | Gln | Asp | Thr | Ala | Gln | Ile | Val | Val | Asn | Val | Thr | Asp | Ala | Asn | Thr |
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| His | Arg | Pro | Val | Phe | Gln | Ser | Ser | His | Tyr | Thr | Val | Asn | Val | Asn | Glu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Asp | Arg | Pro | Ala | Gly | Thr | Thr | Val | Val | Leu | Ile | Ser | Ala | Thr | Asp | Glu |
|     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asp | Thr | Gly | Glu | Asn | Ala | Arg | Ile | Thr | Tyr | Phe | Met | Glu | Asp | Ser | Ile |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Pro | Gln | Phe | Arg | Ile | Asp | Ala | Asp | Thr | Gly | Ala | Val | Thr | Thr | Gln | Ala |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Glu | Leu | Asp | Tyr | Glu | Asp | Gln | Val | Ser | Tyr | Thr | Leu | Ala | Ile | Thr | Ala |

[illegible]



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| Asn Tyr Met Lys Cys Val Ser Val Leu Arg Phe Asp Ser Ser Ala Pro |   | 720  |
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| Phe Leu Ser Ser Thr Thr Val Leu Phe Arg Pro Ile His Pro Ile Asn |   | 735  |
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| Thr Gly Glu His Cys Glu Val Ser Ala Arg Ser Gly Arg Cys Thr Pro |   | 800  |
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| Val Thr Thr Arg Ser Phe Pro Ala His Ser Phe Ile Thr Phe Arg Gly |   | 845  |
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| Asn Gln Trp Asp Ala Phe Ser Cys Glu Cys Pro Leu Gly Phe Gly Gly |   | 1070 |
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| Lys Ser Cys Ala Gln Glu Met Ala Asn Pro Gln His Phe Leu Gly Ser |   | 1085 |
|   | 1090                                    | 1095 |
| Ser Leu Val Ala Trp His Gly Leu Ser Leu Pro Ile Ser Gln Pro Trp |   | 1100 |
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| Tyr Leu Ser Leu Met Phe Arg Thr Arg Gln Ala Asp Gly Val Leu Leu |   | 1120 |

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| Pro Leu Lys Thr Leu Thr Tyr Val Ala Leu Gly Val Thr Leu Ala Ala |      |      |
| 1860  | 1865 | 1870 |
| Leu Leu Leu Thr Phe Phe Phe Leu Thr Leu Leu Arg Ile Leu Arg Ser |      |      |
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| 1890  | 1895 | 1900 |
| Gln Leu Val Phe Leu Leu Gly Ile Asn Gln Ala Asp Leu Pro Phe Ala |      |      |
| 1905  | 1910 | 1915 |
| Cys Thr Val Ile Ala Ile Leu Leu His Phe Leu Tyr Leu Cys Thr Phe |      | 1920 |
| 1925  | 1930 | 1935 |
| Ser Trp Ala Leu Leu Glu Ala Leu His Leu Tyr Arg Ala Leu Thr Glu |      |      |
| 1940  | 1945 | 1950 |
| Val Arg Asp Val Asn Thr Gly Pro Met Arg Phe Tyr Tyr Met Leu Gly |      |      |
| 1955  | 1960 | 1965 |
| Trp Gly Val Pro Ala Phe Ile Thr Gly Leu Ala Val Gly Leu Asp Pro |      |      |
| 1970  | 1975 | 1980 |
| Glu Gly Tyr Gly Asn Pro Asp Phe Cys Trp Leu Ser Ile Tyr Asp Thr |      |      |

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| Val Phe Leu Tyr Ile | Leu Ala Ala Arg | Ala Ser Cys Ala | Ala Gln Arg |
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| Val Asn Ser Asp Thr | Leu Leu Phe His | Tyr Leu Phe Ala | Thr Cys Asn |
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| Cys Ile Gln Gly Pro | Phe Ile Phe Leu | Ser Tyr Val Val | Leu Ser Lys |
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| Asp Pro Ala Leu Thr | Thr Lys Ser Thr | Leu Thr Ser Ser | Tyr Asn Cys |
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| Pro Ser Pro Tyr Ala | Asp Gly Arg Leu | Tyr Gln Pro Tyr | Gly Asp Ser |
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| Ala Gly Ser Leu His | Ser Thr Ser Arg | Ser Gly Lys Ser | Gln Pro Ser |
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| Tyr Ile Pro Phe Leu | Leu Arg Glu Glu | Ser Ala Leu Asn | Pro Gly Gln |
|                     | 2165            | 2170            | 2175        |
| Gly Pro Pro Gly Leu | Gly Asp Pro Gly | Ser Leu Phe Leu | Glu Gly Gln |
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| Asp Gln Gln His Asp | Pro Asp Thr Asp | Ser Asp Ser Asp | Leu Ser Leu |
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| Glu Asp Asp Gln Ser | Gly Ser Tyr Ala | Ser Thr His Ser | Ser Asp Ser |
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| Pro Gly Asp Phe Gly | Thr Thr Ala Lys | Glu Ser Ser Gly | Asn Gly Ala |
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| Pro Glu Glu Arg Leu | Arg Glu Asn Gly | Asp Ala Leu Ser | Arg Glu Gly |
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| Ser Leu Gly Pro Leu | Pro Gly Ser Ser | Ala Gln Pro His | Lys Gly Ile |
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| Leu Lys Lys Lys Cys | Leu Pro Thr Ile | Ser Glu Lys Ser | Ser Leu Leu |
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| Arg Leu Pro Leu Glu | Gln Cys Thr Gly | Ser Ser Arg Gly | Ser Ser Ala |
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| Ser Glu Gly Ser Arg | Gly Gly Pro Pro | Pro Arg Pro Pro | Pro Arg Gln |
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| Lys Ala Gly Thr Val | Asp Glu Asp Ser | Ser Gly Ser Glu | Phe Leu Phe |
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| 545   | 550 | 555 |
| Ala Phe His Met Ile Leu Ala Gly His Arg Phe Ser Lys Ala Gly Gln |     | 560 |
|   | 565 | 570 |
| Lys Lys His Ala Leu Arg Cys Tyr Cys Gln Ala Met Gln Val Tyr Lys |     | 575 |
|   | 580 | 585 |
| Gly Lys Gly Trp Ser Leu Ala Glu Asp His Ile Asn Phe Thr Ile Gly |     | 590 |
|   | 595 | 600 |
| Arg Gln Ser Tyr Thr Leu Arg Gln Leu Asp Asn Ala Val Ser Ala Phe |     | 605 |
|   | 610 | 615 |
| Arg His Ile Leu Ile Asn Glu Ser Lys Gln Ser Ala Ala Gln Gln Gly |     | 620 |
| 625   | 630 | 635 |
| Ala Phe Leu Arg Glu Tyr Leu Tyr Val Tyr Lys Asn Val Ser Gln Leu |     | 640 |

|      |      |      |      |     |      |      |     |      |     |      |      |      |      |     |      |  |  |
|------|------|------|------|-----|------|------|-----|------|-----|------|------|------|------|-----|------|--|--|
|      |      |      |      | 645 |      |      |     |      | 650 |      |      |      |      | 655 |      |  |  |
| Ser  | Pro  | Asp  | Gly  | Pro | Leu  | Pro  | Gln | Leu  | Pro | Leu  | Pro  | Tyr  | Ile  | Asn | Ser  |  |  |
|      |      |      | 660  |     |      |      |     | 665  |     |      |      |      | 670  |     |      |  |  |
| Ser  | Ala  | Thr  | Arg  | Val | Phe  | Phe  | Gly | His  | Asp | Arg  | Arg  | Pro  | Ala  | Asp | Gly  |  |  |
|      |      | 675  |      |     |      |      | 680 |      |     |      |      | 685  |      |     |      |  |  |
| Glu  | Lys  | Gln  | Ala  | Ala | Thr  | His  | Val | Ser  | Leu | Asp  | Gln  | Glu  | Tyr  | Asp | Ser  |  |  |
|      | 690  |      |      |     |      | 695  |     |      |     |      | 700  |      |      |     |      |  |  |
| Glu  | Ser  | Ser  | Gln  | Gln | Trp  | Arg  | Glu | Leu  | Glu | Glu  | Gln  | Val  | Val  | Ser | Val  |  |  |
| 705  |      |      |      |     | 710  |      |     |      |     | 715  |      |      |      |     | 720  |  |  |
| Val  | Asn  | Lys  | Gly  | Val | Ile  | Pro  | Ser | Asn  | Phe | His  | Pro  | Thr  | Gln  | Tyr | Cys  |  |  |
|      |      |      |      | 725 |      |      |     |      | 730 |      |      |      |      | 735 |      |  |  |
| Leu  | Asn  | Ser  | Tyr  | Ser | Asp  | Asn  | Ser | Arg  | Phe | Pro  | Leu  | Ala  | Val  | Val | Glu  |  |  |
|      |      |      | 740  |     |      |      |     | 745  |     |      |      |      | 750  |     |      |  |  |
| Glu  | Pro  | Ile  | Thr  | Val | Glu  | Val  | Ala | Phe  | Arg | Asn  | Pro  | Leu  | Lys  | Val | Leu  |  |  |
|      | 755  |      |      |     |      |      | 760 |      |     |      |      | 765  |      |     |      |  |  |
| Leu  | Leu  | Leu  | Thr  | Asp | Leu  | Ser  | Leu | Leu  | Trp | Lys  | Phe  | His  | Pro  | Lys | Asp  |  |  |
|      | 770  |      |      |     |      | 775  |     |      |     |      | 780  |      |      |     |      |  |  |
| Phe  | Ser  | Gly  | Lys  | Asp | Asn  | Glu  | Glu | Val  | Lys | Gln  | Leu  | Val  | Thr  | Ser | Glu  |  |  |
| 785  |      |      |      |     | 790  |      |     |      |     | 795  |      |      |      |     | 800  |  |  |
| Pro  | Glu  | Met  | Ile  | Gly | Ala  | Glu  | Val | Ile  | Ser | Glu  | Phe  | Leu  | Ile  | Asn | Gly  |  |  |
|      |      |      |      | 805 |      |      |     |      | 810 |      |      |      |      | 815 |      |  |  |
| Glu  | Glu  | Ser  | Lys  | Val | Ala  | Arg  | Leu | Lys  | Leu | Phe  | Pro  | His  | His  | Ile | Gly  |  |  |
|      |      |      | 820  |     |      |      |     | 825  |     |      |      |      | 830  |     |      |  |  |
| Glu  | Leu  | His  | Ile  | Leu | Gly  | Val  | Val | Tyr  | Asn | Leu  | Gly  | Thr  | Ile  | Gln | Gly  |  |  |
|      |      | 835  |      |     |      |      | 840 |      |     |      |      | 845  |      |     |      |  |  |
| Ser  | Met  | Thr  | Val  | Asp | Gly  | Ile  | Gly | Ala  | Leu | Pro  | Gly  | Cys  | His  | Thr | Gly  |  |  |
|      | 850  |      |      |     |      | 855  |     |      |     |      | 860  |      |      |     |      |  |  |
| Lys  | Tyr  | Ser  | Leu  | Ser | Met  | Ser  | Val | Arg  | Gly | Lys  | Gln  | Asp  | Leu  | Glu | Ile  |  |  |
| 865  |      |      |      |     | 870  |      |     |      |     | 875  |      |      |      |     | 880  |  |  |
| Gln  | Gly  | Pro  | Arg  | Leu | Asn  | Asn  | Thr | Lys  | Glu | Glu  | Lys  | Thr  | Ser  | Val | Lys  |  |  |
|      |      |      |      | 885 |      |      |     |      | 890 |      |      |      |      | 895 |      |  |  |
| Tyr  | Gly  | Pro  | Asp  | Arg | Arg  | Leu  | Asp | Pro  | Ile | Ile  | Thr  | Glu  | Glu  | Met | Pro  |  |  |
|      |      |      | 900  |     |      |      |     | 905  |     |      |      |      | 910  |     |      |  |  |
| Leu  | Leu  | Glu  | Val  | Phe | Phe  | Ile  | His | Phe  | Pro | Thr  | Gly  | Leu  | Leu  | Cys | Gly  |  |  |
|      | 915  |      |      |     |      |      | 920 |      |     |      |      | 925  |      |     |      |  |  |
| Glu  | Ile  | Arg  | Lys  | Ala | Tyr  | Val  | Glu | Phe  | Val | Asn  | Val  | Ser  | Lys  | Cys | Pro  |  |  |
|      | 930  |      |      |     |      | 935  |     |      |     |      | 940  |      |      |     |      |  |  |
| Leu  | Thr  | Gly  | Leu  | Lys | Val  | Val  | Ser | Lys  | Arg | Pro  | Glu  | Phe  | Phe  | Thr | Phe  |  |  |
| 945  |      |      |      |     | 950  |      |     |      |     | 955  |      |      |      |     | 960  |  |  |
| Gly  | Gly  | Asn  | Thr  | Ala | Val  | Leu  | Thr | Pro  | Leu | Ser  | Pro  | Ser  | Ala  | Ser | Glu  |  |  |
|      |      |      |      | 965 |      |      |     |      | 970 |      |      |      |      | 975 |      |  |  |
| Asn  | Cys  | Ser  | Ala  | Tyr | Lys  | Thr  | Val | Val  | Thr | Asp  | Ala  | Thr  | Ser  | Val | Cys  |  |  |
|      |      |      | 980  |     |      |      |     | 985  |     |      |      |      | 990  |     |      |  |  |
| Thr  | Ala  | Leu  | Ile  | Ser | Ser  | Ala  | Ser | Ser  | Val | Asp  | Phe  | Gly  | Ile  | Gly | Thr  |  |  |
|      | 995  |      |      |     |      | 1000 |     |      |     |      |      | 1005 |      |     |      |  |  |
| Gly  | Ser  | Gln  | Pro  | Glu | Val  | Ile  | Pro | Val  | Pro | Leu  | Pro  | Asp  | Thr  | Val | Leu  |  |  |
|      | 1010 |      |      |     |      | 1015 |     |      |     |      | 1020 |      |      |     |      |  |  |
| Leu  | Pro  | Gly  | Ala  | Ser | Val  | Gln  | Leu | Pro  | Met | Trp  | Leu  | Arg  | Gly  | Pro | Asp  |  |  |
| 1025 |      |      |      |     | 1030 |      |     |      |     | 1035 |      |      |      |     | 1040 |  |  |
| Glu  | Glu  | Gly  | Val  | His | Glu  | Ile  | Asn | Phe  | Leu | Phe  | Tyr  | Tyr  | Glu  | Ser | Val  |  |  |
|      |      |      | 1045 |     |      |      |     | 1050 |     |      |      |      | 1055 |     |      |  |  |
| Lys  | Lys  | Gln  | Pro  | Lys | Ile  | Arg  | His | Arg  | Ile | Leu  | Arg  | His  | Thr  | Ala | Ile  |  |  |
|      |      | 1060 |      |     |      |      |     | 1065 |     |      |      |      | 1070 |     |      |  |  |
| Ile  | Cys  | Thr  | Ser  | Arg | Ser  | Leu  | Asn | Val  | Arg | Ala  | Thr  | Val  | Cys  | Arg | Ser  |  |  |

|   |      |      |
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| 1090  | 1095 | 1100 |
| Val Asp Val Glu Asn Thr Asn Thr Ser Glu Ala Gly Val Lys Glu Phe |      |      |
| 1105  | 1110 | 1115 |
| His Ile Val Gln Val Ser Ser Ser Ser Lys His Trp Lys Leu Gln Lys |      |      |
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| Ser Val Asn Leu Ser Glu Asn Lys Asp Ala Lys Leu Ala Ser Arg Glu |      |      |
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| Lys Gly Lys Phe Cys Phe Lys Ala Ile Arg Cys Glu Lys Glu Glu Ala |      |      |
| 1155  | 1160 | 1165 |
| Ala Thr Gln Ser Ser Glu Lys Tyr Thr Phe Ala Asp Ile Ile Phe Gly |      |      |
| 1170  | 1175 | 1180 |
| Asn Glu Gln Ile Ile Ser Ser Ala Ser Pro Cys Ala Asp Phe Phe Tyr |      |      |
| 1185  | 1190 | 1195 |
| Arg Ser Leu Ser Ser Glu Leu Lys Lys Pro Gln Ala His Leu Pro Val |      |      |
| 1205  | 1210 | 1215 |
| His Thr Glu Lys Gln Ser Thr Glu Asp Ala Val Arg Leu Ile Gln Lys |      |      |
| 1220  | 1225 | 1230 |
| Cys Ser Glu Val Asp Leu Asn Ile Val Ile Leu Trp Lys Ala Tyr Val |      |      |
| 1235  | 1240 | 1245 |
| Val Glu Asp Ser Lys Gln Leu Ile Leu Glu Gly Gln His His Val Ile |      |      |
| 1250  | 1255 | 1260 |
| Leu Arg Thr Ile Gly Lys Glu Ala Phe Ser Tyr Pro Gln Lys Gln Glu |      |      |
| 1265  | 1270 | 1275 |
| Pro Pro Glu Met Glu Leu Leu Lys Phe Phe Arg Pro Glu Asn Ile Thr |      |      |
| 1285  | 1290 | 1295 |
| Val Ser Ser Arg Pro Ser Val Glu Gln Leu Ser Ser Leu Ile Lys Thr |      |      |
| 1300  | 1305 | 1310 |
| Ser Leu His Tyr Pro Glu Ser Phe Asn His Pro Phe His Gln Lys Ser |      |      |
| 1315  | 1320 | 1325 |
| Leu Cys Leu Val Pro Val Thr Leu Leu Leu Ser Asn Cys Ser Lys Ala |      |      |
| 1330  | 1335 | 1340 |
| Asp Val Asp Val Ile Val Asp Leu Arg His Lys Thr Thr Ser Pro Glu |      |      |
| 1345  | 1350 | 1355 |
| Ala Leu Glu Ile His Gly Ser Phe Thr Trp Leu Gly Gln Thr Gln Tyr |      |      |
| 1365  | 1370 | 1375 |
| Lys Leu Gln Leu Lys Ser Gln Glu Ile His Ser Leu Gln Leu Lys Ala |      |      |
| 1380  | 1385 | 1390 |
| Cys Phe Val His Thr Gly Val Tyr Asn Leu Gly Thr Pro Arg Val Phe |      |      |
| 1395  | 1400 | 1405 |
| Ala Lys Leu Ser Asp Gln Val Thr Val Phe Glu Thr Ser Gln Gln Asn |      |      |
| 1410  | 1415 | 1420 |
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&lt;210&gt; 3915

&lt;211&gt; 1802

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3915

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 Ser Trp Arg Tyr Glu Glu Thr Ser Glu Asn Glu Ala Val Ala Glu Glu  
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 Tyr Val Cys Arg Leu Asn Arg Ser Asp Ser Asp Ser Ser Thr Leu Ser  
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 Lys Lys Pro Pro Phe Val Arg Asn Ser Leu Glu Arg Arg Ser Val Arg  
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 Met Lys Arg Pro Ser Pro Pro Pro Gln Pro Ser Ser Val Lys Ser Leu  
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 225 230 235 240  
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 Lys Glu Leu Pro Gln Trp Leu Arg Glu Asp Glu Arg Phe Arg Leu Leu  
 260 265 270  
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 275 280 285  
 Glu Leu Gln Thr Asp Lys Met Met Arg Ala Ala Ala Lys Asp Val His  
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50 55 60  
Ser Phe Trp Asn Asp Cys Ile Ser Ser Gly Leu Arg Gly Gly Ile Leu  
65 70 75 80  
Ile Glu Leu Ala Met Arg Gly Arg Ile Tyr Leu Glu Pro Pro Thr Met  
85 90 95  
Arg Lys Lys Arg Leu Leu Asp Arg Lys Val Leu Leu Lys Ser Asp Ser  
100 105 110  
Pro Thr Gly Asp Val Leu Leu Asp Glu Thr Leu Lys His Ile Lys Ala  
115 120 125  
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Glu Thr Trp Asn Pro Phe Lys Leu  
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140

&lt;210&gt; 3919

&lt;211&gt; 1278

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3919

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<400> 3920

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Leu Thr Gln Glu Arg Asp Tyr Leu Gln Ala Gln His Pro Pro Ser Pro
      35           40           45
Ile Lys Ser Ser Ser Ala Asp Ser Thr Pro Ser Pro Thr Ser Ser Leu
      50           55           60
Ser Ser Glu Asp Lys Gln His Leu Ala Val Glu Leu Ala Asp Thr Lys
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Ala Arg Leu Arg Arg Val Arg Gln Glu Leu Glu Asp Lys Thr Glu Gln
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Leu Val Asp Thr Arg His Glu Val Asp Gln Leu Val Leu Glu Leu Gln
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Lys Val Lys Gln Glu Asn Ile Gln Leu Ala Ala Asp Ala Arg Ser Ala
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Arg Ala Tyr Arg Asp Glu Leu Asp Ser Leu Arg Glu Lys Ala Asn Arg
      130          135          140
Val Glu Arg Leu Glu Leu Glu Leu Thr Arg Cys Lys Glu Lys Leu His
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Asp Val Asp Phe Tyr Lys Ala Arg Met Glu Glu Leu Arg Glu Asp Asn
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Ile Ile Leu Ile Glu Thr Lys Ala Met Leu Glu Glu Gln Leu Thr Ala
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Gln Leu Lys Ser Lys Leu His Asp Leu Glu Leu Asp Arg Asp Thr Asp
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Phe Val Phe Glu Leu Asn Glu Cys Ala Ser Ser Arg Ile Leu Lys Leu
      275          280          285
Glu Lys Glu Asn Gln Ser Leu Gln Ser Thr Ile Gln Gly Leu Arg Asp
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      305          310          315          320
Lys Glu Asn His Gln Leu Ser Lys Lys Ile Glu Lys Leu Gln Thr Gln
      325          330          335
Leu Glu Arg Glu Lys Gln Ser Asn Gln Asp Leu Glu Thr Leu Ser Glu
      340          345          350
Glu Leu Ile Arg Glu Lys Glu Gln Leu Gln Ser Asp Met Glu Thr Leu
      355          360          365
Lys Ala Asp Lys Ala Arg Gln Ile Lys Asp Leu Glu Gln Glu Lys Asp

```



```

      370              375              380
His Leu Asn Arg Ala Met Trp Ser Leu Arg Glu Arg Ser Gln Val Ser
385              390              395              400
Ser Glu Ala Arg Met Lys Asp Val Glu Lys Glu Asn Lys Ala Leu His
      405              410              415
Gln Thr Val Thr Glu Ala Asn Gly Lys Leu
      420              425

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<210> 3921  
 <211> 413  
 <212> DNA  
 <213> Homo sapiens

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<400> 3921
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120
atgcctctgc tgcttgccag cctcgtgacc ttcattcatg cagggccttg ttttcttgat
180
tcagtggggc caatcccggc cccagggga gatggatgct gcagggatgt gcaagctgta
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413

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<210> 3922  
 <211> 126  
 <212> PRT  
 <213> Homo sapiens

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<400> 3922
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1      5      10      15
Arg Gln Pro Gly Pro Val Phe Val Gly Thr Arg Phe Gln Met Pro Leu
      20      25      30
Leu Leu Ala Ser Leu Val Thr Phe Ile His Ala Gly Pro Cys Phe Leu
      35      40      45
Asp Ser Val Gly Pro Ile Pro Ala Pro Arg Gly Asp Gly Cys Cys Arg
      50      55      60
Asp Val Gln Ala Val Glu Gly Ser Arg Glu Trp Ala Trp Arg Ser Ala
      65      70      75      80
Ser Leu Ala Pro Leu Leu Asp Ala Phe Leu Gln Pro Leu Glu Leu Arg
      85      90      95
Gln Cys Ser Val Arg Met Ile Ile Gly Phe Pro Pro Gln Phe Leu Ala
      100      105      110
His Ser Phe Val Ala Leu Val Thr Ala Phe Cys Asp Asn Ile
      115      120      125

```

<210> 3923  
 <211> 820

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3923

```

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120
tcttcttcct cttgctgaag cttctgctcc atctctcgca ggactgggtc tgttggggcc
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240
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300
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360
gttttgagga ctccacccaa aacactgttt tggggtagca ctgaattaac tgtggtgatt
420
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480
tcaaactgct ccctctccaa agaagtccca ctgcctcccc ctttgagttc tgaggaacag
540
caggtttcca gtgggatctc agtgctactt ttattatcac tgtcctgttc tgcttttgtt
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820

```

&lt;210&gt; 3924

&lt;211&gt; 250

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3924

```

Met Gly Glu Glu Leu Leu Gly Ser Glu Gly Ile His Ser Ser Lys Glu
1      5      10      15
Lys Pro Leu Val Ala Val Asn Thr Arg Leu Ser Gly Gly Gln Val Leu
20     25     30
Ser Glu Tyr Thr Gly Pro Thr Ser Ala Asp Leu Asp His Phe Pro Ser
35     40     45
Val Ser Gln Thr Lys Ala Glu Gln Asp Ser Asp Asn Lys Ser Ser Thr
50     55     60
Glu Ile Pro Leu Glu Thr Cys Cys Ser Ser Glu Leu Lys Gly Gly Gly
65     70     75     80
Ser Gly Thr Ser Leu Glu Arg Glu Gln Phe Glu Gly Leu Gly Ser Thr
85     90     95
Pro Asp Ala Lys Leu Asp Lys Thr Cys Ile Ser Arg Ala Met Lys Ile
100    105    110
Thr Thr Val Asn Ser Val Leu Pro Gln Asn Ser Val Leu Gly Gly Val

```

|                             |                         |                     |
|-----------------------------|-------------------------|---------------------|
| 115                         | 120                     | 125                 |
| Leu Lys Thr Lys Gln Gln     | Leu Lys Thr Leu Asn His | Phe Asp Leu Thr     |
| 130                         | 135                     | 140                 |
| Asn Gly Val Leu Val Glu Ser | Leu Ser Glu Glu Pro     | Leu Pro Ser Leu     |
| 145                         | 150                     | 155                 |
| Arg Arg Gly Arg Lys Arg     | His Cys Lys Thr Lys     | His Leu Glu Gln Asn |
| 165                         | 170                     | 175                 |
| Gly Ser Leu Lys Lys Leu     | Arg Gln Thr Ser Gly     | Glu Val Gly Leu Ala |
| 180                         | 185                     | 190                 |
| Pro Thr Asp Pro Val Leu     | Arg Glu Met Glu Gln     | Lys Leu Gln Gln Glu |
| 195                         | 200                     | 205                 |
| Glu Glu Asp Arg Gln Leu     | Ala Leu Gln Leu Gln     | Arg Met Phe Asp Asn |
| 210                         | 215                     | 220                 |
| Glu Arg Arg Thr Val Ser     | Arg Arg Lys Gly Ser     | Val Asp Gln Tyr Leu |
| 225                         | 230                     | 235                 |
| Leu Arg Ser Ser Asn Met     | Ala Gly Gly Arg         |                     |
| 245                         | 250                     |                     |

&lt;210&gt; 3925

&lt;211&gt; 3296

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3925

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120
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240
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300
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420
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480
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900

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1020  
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2520

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<210> 3926

<211> 683

<212> PRT

<213> Homo sapiens

<400> 3926

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Phe | Ile | Phe | Asn | Phe | Leu | Phe | Ser | Pro | Leu | Pro | Thr | Pro | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Ile | Cys | Ile | Leu | Thr | Phe | Gly | Ala | Ala | Ile | Phe | Leu | Trp | Leu | Ile |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Arg | Pro | Gln | Pro | Val | Leu | Pro | Leu | Leu | Asp | Leu | Asn | Asn | Gln | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Gly | Ile | Glu | Gly | Gly | Ala | Arg | Lys | Gly | Val | Ser | Gln | Lys | Asn | Asn |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Asp | Leu | Thr | Ser | Cys | Cys | Phe | Ser | Asp | Ala | Lys | Thr | Met | Tyr | Glu | Val |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Phe | Gln | Arg | Gly | Leu | Ala | Val | Ser | Asp | Asn | Gly | Pro | Cys | Leu | Gly | Tyr |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Arg | Lys | Pro | Asn | Gln | Pro | Tyr | Arg | Trp | Leu | Ser | Tyr | Lys | Gln | Val | Ser |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asp | Arg | Ala | Glu | Tyr | Leu | Gly | Ser | Cys | Leu | Leu | His | Lys | Gly | Tyr | Lys |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Ser | Ser | Pro | Asp | Gln | Phe | Val | Gly | Ile | Phe | Ala | Gln | Asn | Arg | Pro | Glu |
|     | 130 |     |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |
| Trp | Ile | Ile | Ser | Glu | Leu | Ala | Cys | Tyr | Thr | Tyr | Ser | Met | Val | Ala | Val |
| 145 |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |     |
| Pro | Leu | Tyr | Asp | Thr | Leu | Gly | Pro | Glu | Ala | Ile | Val | His | Ile | Val | Asn |

3088

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
|     | 595 |     |     |     |     | 600 |     |     |     |     |     | 605 |     |     |     |  |  |  |  |
| Leu | Cys | Gln | Asn | Gln | Val | Val | Arg | Glu | Ala | Ile | Leu | Glu | Asp | Leu | Gln |  |  |  |  |
|     | 610 |     |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |  |  |  |  |
| Lys | Ile | Gly | Lys | Glu | Ser | Gly | Leu | Lys | Thr | Phe | Glu | Gln | Val | Lys | Ala |  |  |  |  |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |  |  |  |  |
| Ile | Phe | Leu | His | Pro | Glu | Pro | Phe | Ser | Ile | Glu | Asn | Gly | Leu | Leu | Thr |  |  |  |  |
|     |     |     | 645 |     |     |     |     |     | 650 |     |     |     |     | 655 |     |  |  |  |  |
| Pro | Thr | Leu | Lys | Ala | Lys | Arg | Gly | Glu | Leu | Ser | Lys | Tyr | Phe | Arg | Thr |  |  |  |  |
|     |     | 660 |     |     |     |     | 665 |     |     |     |     |     | 670 |     |     |  |  |  |  |
| Gln | Ile | Asp | Ser | Leu | Tyr | Glu | His | Ile | Gln | Asp |     |     |     |     |     |  |  |  |  |
|     | 675 |     |     |     |     |     | 680 |     |     |     |     |     |     |     |     |  |  |  |  |

&lt;210&gt; 3927

&lt;211&gt; 3197

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3927

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120  
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2700



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 3197

<210> 3928

<211> 180

<212> PRT

<213> Homo sapiens

<400> 3928

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Glu | Ala | Ala | Thr | Arg | Trp | Ser | Cys | Gln | Gly | Ser | Cys | Gln | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Cys | Phe | Ser | Arg | Val | Arg | Pro | Trp | Arg | Arg | Arg | Cys | Ser | Cys | Gly |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asp | Ser | Ser | Ser | Arg | Arg | Arg | Arg | Ser | Cys | Cys | Thr | Gly | Ser | Leu | Gly |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Pro | Met | Pro | Arg | Leu | Pro | Ser | Leu | Trp | Pro | Leu | Ser | Leu | Pro | Leu | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ser | Leu | Ser | Ser | Pro | His | Arg | Val | Gln | Gly | Leu | Gly | Pro | Pro | Arg | Arg |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Leu | Lys | Ser | Gln | Leu | Leu | Pro | Arg | Phe | Phe | Trp | Arg | Arg | Gln | Gln | Glu |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Pro | Leu | Ser | Ser | Phe | Pro | Gly | Arg | Asn | Glu | Gly | Gly | Ser | Glu | Met | Glu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ile | Leu | Gly | Val | Cys | Pro | Val | Ser | Pro | Gly | Ala | Leu | Ser | Tyr | Met | Glu |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Pro | Thr | Gly | Phe | Trp | Arg | Pro | Arg | Glu | Ala | Ser | Ser | Leu | Glu | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ala | Lys | Gly | Ile | Ser | Lys | Arg | Arg | His | Phe | Leu | Pro | Ala | Pro | Ala | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Cys | Pro | Asn | Pro | Arg | Ser | Ser | Glu | Ala | Phe | Pro | Gly | Ala | Val | Cys | Val |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Thr | Leu | Ala | Ile |     |     |     |     |     |     |     |     |     |     |     |     |
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<210> 3929

<211> 470

<212> DNA

<213> Homo sapiens

&lt;400&gt; 3929

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&lt;210&gt; 3930

&lt;211&gt; 115

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3930

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Pro Pro Arg Cys Ala Gly Arg Ser Ala Pro Leu Ser Gly Pro Asp Ser
20          25          30
Gln Ser Glu Asn Glu Ala Ser Pro Val Lys Arg Pro Arg Leu Leu Glu
35          40          45
Asn Thr Glu Arg Ser Glu Glu Thr Ser Arg Ser Lys Gln Lys Ser Arg
50          55          60
Arg Arg Cys Phe Gln Cys Gln Thr Lys Leu Glu Leu Val Gln Gln Glu
65          70          75          80
Leu Gly Ser Cys Arg Cys Gly Tyr Val Phe Cys Met Leu His Arg Leu
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Pro Glu Gln His Asp Cys Thr Phe Asp His Met Gly Val Ala Gly Arg
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Ser His His
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&lt;210&gt; 3931

&lt;211&gt; 3568

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3931

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180

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 Gly Ala Leu Leu Phe Cys Gly Phe Ile Ile Tyr Asp Thr His Ser Leu  
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 Met His Lys Leu Ser Pro Glu Glu Tyr Val Leu Ala Ala Ile Ser Leu  
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<210> 3933  
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&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3933

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&lt;210&gt; 3934

&lt;211&gt; 130

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3934

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Arg | Arg | Ser | Glu | Val | Asn | Ala | Ile | Ala | Asn | Pro | Pro | Asn | Pro | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Ser | Arg | Arg | Ala | His | Ser | Leu | Thr | Thr | Ala | Gly | Ser | Pro | Asn | Leu |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | Ala | Gly | Thr | Ser | Ser | Pro | Ile | Arg | Pro | Val | Ser | Ser | Pro | Val | Leu |
|     |     |     |     | 35  |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ser | Ser | Ser | Asn | Lys | Ser | Pro | Ser | Ser | Ala | Trp | Ser | Ser | Ser | Ser | Trp |
|     |     |     |     | 50  |     | 55  |     |     |     |     | 60  |     |     |     |     |
| His | Gly | Arg | Ile | Lys | Gly | Gly | Met | Lys | Gly | Phe | Gln | Ser | Phe | Met | Val |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     | 80  |     |
| Ser | Asp | Ser | Asn | Met | Ser | Phe | Val | Glu | Phe | Val | Glu | Leu | Phe | Lys | Ser |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Phe | Ser | Val | Arg | Ser | Arg | Lys | Asp | Leu | Lys | Asp | Leu | Phe | Asp | Xaa | Leu |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 100 |     | 105 |     | 110 |     |     |     |     |     |     |     |     |     |     |
| Cys | Ser | Ala | Leu | Gln | Pro | Xaa | Leu | Ala | Pro | Ser | Gln | Pro | His | Ser | Thr |
|     | 115 |     | 120 |     | 125 |     |     |     |     |     |     |     |     |     |     |
| Pro | Thr |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
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<210> 3936  
 <211> 265  
 <212> PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3936

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          20           25           30
Val Arg Ala His Gly Asp Pro Val Ser Glu Ser Phe Val Gln Arg Val
          35           40           45
Tyr Gln Pro Phe Leu Thr Thr Cys Asp Gly His Arg Ala Cys Ser Thr
          50           55           60
Tyr Arg Thr Ile Tyr Arg Thr Ala Tyr Arg Arg Ser Pro Gly Leu Ala
65           70           75           80
Pro Ala Arg Pro Arg Tyr Ala Cys Cys Pro Gly Trp Lys Arg Thr Ser
          85           90           95
Gly Leu Pro Gly Ala Cys Gly Ala Ala Ile Cys Gln Pro Pro Cys Arg
          100          105          110
Asn Gly Gly Ser Cys Val Gln Pro Gly Arg Cys Arg Cys Pro Ala Gly
          115          120          125
Trp Arg Gly Asp Thr Cys Gln Ser Asp Val Asp Glu Cys Ser Ala Arg
          130          135          140
Arg Gly Gly Cys Pro Gln Arg Cys Val Asn Thr Ala Gly Ser Tyr Trp
145          150          155          160
Cys Gln Cys Trp Glu Gly His Ser Leu Ser Ala Asp Gly Thr Leu Cys
          165          170          175
Val Pro Lys Gly Gly Pro Pro Arg Val Ala Pro Asn Pro Thr Gly Lys
          180          185          190
Gln Pro Trp Leu Cys Leu Ala Trp Gly Gly Gly Gln Ala Val Asp Ile
          195          200          205
Ala Val Trp Leu Leu Gly Met Val Gly Gly Thr Gly Ile Trp Ala Glu
          210          215          220
Gly Gly Gly Asp Ser Leu Ser Arg Glu Gly Gly Trp Gly Gly Arg Ile
225          230          235          240
Gly Gly Phe Pro Arg Thr Gly Gly Arg Leu Pro Gly Ala Ser Tyr Gln
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Pro Arg Arg Gln Lys Cys Pro Val Pro
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&lt;210&gt; 3937

&lt;211&gt; 744

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3937

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300

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<210> 3938

<211> 154

<212> PRT

<213> Homo sapiens

<400> 3938

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Pro | Ala | Gly | Ala | Ala | Phe | Ala | Ala | Asn | His | Pro | Val | Leu | Pro | Pro |
| 1   |     |     | 5   |     |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | His | Val | Leu | Ala | Glu | Asn | Ala | Asp | Leu | Ser | Arg | Asn | Ala | Gly |     |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |
| Arg | Arg | Gly | Trp | Arg | Gly | Leu | Arg | Ala | Pro | Arg | Tyr | Arg | Asp | Pro | Gly |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Arg | Ala | Ala | Glu | Ala | Gly | Asn | Ala | Lys | Gly | Asp | Ala | Thr | Ala | Gly | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Lys | Glu | Gln | Gly | Gly | Gly | Gln | Asp | Pro | Ala | Ala | Ile | Ala | Gly | His |     |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |     |
| Ser | Ala | Gly | Gly | Ser | Asp | His | Ala | Gly | Glu | Arg | Gly | Leu | Xaa | Gly | Arg |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     | 95  |     |     |     |
| Thr | Gly | Trp | Leu | Ala | Ala | Lys | Ala | Ala | Pro | Ala | Gly | Gly | His | Arg | Glu |
|     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |     |
| Thr | Gly | Leu | Ala | Ser | Val | Gly | Ala | Gly | Pro | Trp | Leu | Gly | Arg | Arg | Asn |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Pro | Arg | Gln | Pro | Phe | Ser | Phe | Val | Gly | Pro | Ala | Glu | Ser | Pro | Asp | Arg |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asp | Thr | Met | Pro | Gly | Leu | Ser | Gly | Val | Leu |     |     |     |     |     |     |
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<210> 3939

<211> 490

<212> DNA

<213> Homo sapiens

<400> 3939

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<210> 3940  
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 <212> PRT  
 <213> Homo sapiens

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<210> 3941  
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 <212> DNA  
 <213> Homo sapiens

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1980  
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&lt;210&gt; 3942

<211> 89  
 <212> PRT  
 <213> Homo sapiens

<400> 3942  
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 35 40 45  
 Gly Ala Arg Ser Gln Ser Thr Pro Ser Ser Asp Thr Leu Pro Pro Ala  
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<210> 3943  
 <211> 1524  
 <212> DNA  
 <213> Homo sapiens

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 720  
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<210> 3944

<211> 435

<212> PRT

<213> Homo sapiens

<400> 3944

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Arg | Gln | Lys | Ser | Ala | Ser | Glu | Ile | Gly | Cys | Gly | Arg | Pro | Ala | Arg |
| 1   |     |     | 5   |     |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Leu | Gly | Pro | Thr | Pro | Gly | Pro | Pro | Ser | Pro | Gly | Arg | Pro | Ala |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Val | Gly | Thr | Met | Ser | Gln | Val | Leu | Gly | Lys | Pro | Gln | Pro | Gln | Asp | Glu |
|     |     |     | 35  |     |     |     | 40  |     |     |     | 45  |     |     |     |     |
| Asp | Asp | Ala | Glu | Glu | Glu | Glu | Glu | Glu | Asp | Glu | Leu | Val | Gly | Leu | Ala |
|     |     |     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |
| Asp | Tyr | Gly | Asp | Gly | Pro | Asp | Ser | Ser | Asp | Ala | Asp | Pro | Asp | Ser | Gly |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Thr | Glu | Glu | Gly | Val | Leu | Asp | Phe | Ser | Asp | Pro | Phe | Ser | Thr | Glu | Val |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Lys | Pro | Arg | Ile | Leu | Leu | Met | Gly | Leu | Arg | Arg | Ser | Gly | Lys | Ser | Ser |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ile | Gln | Lys | Val | Val | Phe | His | Lys | Met | Ser | Pro | Asn | Glu | Thr | Leu | Phe |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Leu | Glu | Ser | Thr | Asn | Lys | Ile | Cys | Arg | Glu | Asp | Val | Ser | Asn | Ser | Ser |
|     |     |     | 130 |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Val | Asn | Phe | Gln | Ile | Trp | Asp | Phe | Pro | Gly | Gln | Ile | Asp | Phe | Phe |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Asp | Pro | Thr | Phe | Asp | Tyr | Glu | Met | Ile | Phe | Arg | Gly | Thr | Gly | Ala | Leu |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ile | Phe | Val | Ile | Asp | Ala | Gln | Asp | Asp | Tyr | Met | Glu | Ala | Leu | Thr | Arg |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Leu | His | Ile | Thr | Val | Ser | Lys | Ala | Tyr | Lys | Val | Asn | Pro | Asp | Met | Asn |

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<210> 3945
<211> 696
<212> DNA
<213> Homo sapiens
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3106



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 600  
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<210> 3946

<211> 165

<212> PRT

<213> Homo sapiens

<400> 3946

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gln | Val | Ile | Ala | Gly | Ser | Leu | Ala | Val | Leu | Ala | Thr | Ala | Asp | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Ser | Ser | Gly | Gly | His | His | Arg | Ser | Gly | Asp | Pro | Gly | Leu | Ala | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Leu | Gln | His | His | Lys | Ala | Val | Gly | Pro | Gly | His | Leu | Gln | His | Leu |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Thr | Glu | Leu | Arg | Leu | Arg | Gln | Arg | Asp | Leu | Leu | Glu | Gln | Arg | Val | Gln |
|     |     |     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |
| Gly | His | Ala | Ala | Pro | Val | Gly | Ala | Gln | Asp | Phe | Gly | Asp | Glu | Ala | Ala |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| His | Leu | Arg | Val | Arg | His | Gly | Ala | Leu | Ala | Val | Leu | Ala | Leu | Pro | Arg |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Arg | Gly | Thr | Arg | Phe | Arg | Gly | Asn | Arg | Lys | Ser | Lys | Leu | Thr | Ser | Val |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Gln | Gly | Arg | Ala | Arg | Ala | Val | Leu | Leu | Leu | Gly | Ala | Pro | Gly | Val | Ser |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Glu | Gly | Ala | Leu | Ser | Val | Ala | Val | Ser | Pro | Ala | Gln | Arg | Ser | Thr | Leu |
|     |     |     | 130 |     |     |     | 135 |     |     |     | 140 |     |     |     |     |
| Gly | Ser | Gln | Val | Lys | Arg | Leu | Asp | Leu | Thr | Asp | Arg | Val | Leu | Val | Ala |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |
| Gly | Leu | Gln | Pro | Ala |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |

<210> 3947

<211> 400

<212> DNA

<213> Homo sapiens

<400> 3947

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 240  
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 <211> 133  
 <212> PRT  
 <213> Homo sapiens

<400> 3948  
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 50 55 60  
 Val Ile Lys Asp Leu Lys Gly Ser Asp Tyr Ser Trp Ser Tyr Gln Thr  
 65 70 75 80  
 Pro Pro Ser Ser Pro Ser Ser Ser Ser Ser Arg Lys Ser Ser Met Cys  
 85 90 95  
 Ser Ala Pro Ser Ser Ser Ser Ala Lys Gly Gly Gly Ser Pro Met  
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<210> 3949  
 <211> 1462  
 <212> DNA  
 <213> Homo sapiens

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 180  
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 300  
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 480  
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 1380  
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<210> 3950

<211> 351

<212> PRT

<213> Homo sapiens

<400> 3950

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Ala | Leu | Leu | Gln | Ser | Leu | Val | Ile | Val | Leu | Leu | Gly | Phe | Arg |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Ser | Leu | Leu | Ser | Asp | Gln | Leu | Gly | Cys | Glu | Val | Leu | Asn | Leu | Leu | Thr |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |
| Ala | Gln | Gln | Tyr | Glu | Ile | Phe | Ser | Arg | Ser | Leu | Arg | Lys | Asn | Arg | Glu |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Leu | Phe | Val | His | Gly | Leu | Pro | Gly | Ser | Gly | Lys | Asn | Ile | Met | Ala | Met |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Lys | Ile | Met | Glu | Lys | Ile | Arg | Asn | Val | Phe | His | Cys | Glu | Ala | His | Arg |
| 65  |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |     |
| Ile | Leu | Tyr | Val | Cys | Glu | Asn | Gln | Pro | Leu | Arg | Asn | Phe | Ile | Ser | Asp |
|     |     | 85  |     |     |     | 90  |     |     |     |     | 95  |     |     |     |     |
| Arg | Asn | Ile | Cys | Arg | Ala | Glu | Thr | Arg | Glu | Thr | Phe | Leu | Arg | Glu | Lys |
|     |     | 100 |     |     |     | 105 |     |     |     |     | 110 |     |     |     |     |
| Phe | Glu | His | Ile | Gln | His | Ile | Val | Ile | Asp | Glu | Ala | Gln | Asn | Phe | Arg |

|   |     |     |
|---|-----|-----|
| 115   | 120 | 125 |
| Thr Glu Asp Gly Asp Trp Tyr Gly Lys Ala Lys Ser Ile Thr Gln Arg |     |     |
| 130   | 135 | 140 |
| Glu Lys Asp Cys Pro Gly Val Leu Trp Ile Phe Leu Asp Tyr Phe Gln |     |     |
| 145   | 150 | 155 |
| Thr Ser His Leu Gly His Ser Gly Leu Pro Pro Leu Ser Asp Gln Tyr |     |     |
| 165   | 170 | 175 |
| Pro Arg Glu Glu Leu Thr Arg Ile Val Arg Asn Ala Asp Glu Ile Ala |     |     |
| 180   | 185 | 190 |
| Glu Tyr Leu Gln Lys Glu Met Gln Leu Ile Ile Glu Asn Pro Pro Ile |     |     |
| 195   | 200 | 205 |
| Asn Ile Pro Thr Gly Cys Leu Glu Val Phe Pro Glu Ala Glu Trp Ser |     |     |
| 210   | 215 | 220 |
| Gln Gly Val Gln Gly Thr Leu Arg Ile Lys Lys Tyr Leu Thr Val Glu |     |     |
| 225   | 230 | 235 |
| Gln Ile Met Thr Cys Val Ala Asp Thr Cys Arg Arg Phe Phe Asp Arg |     |     |
| 245   | 250 | 255 |
| Gly Tyr Ser Pro Lys Asp Val Ala Val Leu Val Ser Thr Ala Lys Glu |     |     |
| 260   | 265 | 270 |
| Val Glu His Tyr Lys Tyr Glu Leu Leu Lys Ala Met Arg Lys Lys Arg |     |     |
| 275   | 280 | 285 |
| Val Val Gln Leu Ser Asp Ala Cys Asp Met Leu Gly Asp His Ile Val |     |     |
| 290   | 295 | 300 |
| Leu Asp Ser Val Arg Arg Phe Ser Gly Leu Glu Arg Ser Ile Val Phe |     |     |
| 305   | 310 | 315 |
| Gly Ile His Pro Arg Thr Ala Asp Pro Ala Ile Leu Pro Asn Ile Leu |     |     |
| 325   | 330 | 335 |
| Ile Cys Leu Ala Ser Arg Ala Lys Gln His Leu Tyr Ile Phe Leu     |     |     |
| 340   | 345 | 350 |

<210> 3951  
 <211> 1012  
 <212> DNA  
 <213> Homo sapiens

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 240  
 ttgactaggg tccaaccagt gtttcacttc aagcccacta cgggtggtgac aagctgccag  
 300  
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 540

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 900  
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<210> 3952

<211> 188

<212> PRT

<213> Homo sapiens

<400> 3952

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| Met | Lys | Thr | Leu | Thr | Arg | Val | Gln | Pro | Val | Phe | His | Phe | Lys | Pro | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Val | Val | Thr | Ser | Cys | Gln | Pro | Lys | Asn | Pro | Arg | Glu | Leu | His | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Arg | Lys | Leu | Asp | Pro | Gly | Lys | Met | His | Ala | Lys | Ile | Trp | Leu | Met |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Lys | Thr | Ser | Leu | Arg | Ser | Gly | Arg | Ala | Ala | Leu | Arg | Glu | Leu | Arg | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Arg | Glu | Asn | Phe | Leu | Ser | Lys | Leu | Asn | Arg | Glu | Leu | Ile | Glu | Thr | Ile |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Gln | Glu | Met | Glu | Asn | Ser | Thr | Thr | Leu | His | Val | Arg | Ala | Leu | Leu | Gln |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gln | Gln | Asp | Thr | Leu | Ala | Thr | Ile | Ile | Asp | Ile | Leu | Glu | Tyr | Ser | Asn |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |
| Lys | Lys | Arg | Leu | Gln | Gln | Leu | Lys | Ser | Glu | Leu | Gln | Glu | Trp | Glu | Glu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Lys | Lys | Lys | Cys | Lys | Met | Ser | Tyr | Leu | Glu | Gln | Gln | Ala | Glu | Gln | Leu |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asn | Ala | Lys | Ile | Glu | Lys | Thr | Gln | Glu | Glu | Val | Asn | Phe | Leu | Ser | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Tyr | Met | Asp | His | Glu | Tyr | Ser | Ile | Lys | Ser | Val | Gln | Ile | Ser | Thr | Leu |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Met | Arg | His | Cys | Ser | Arg | Leu | Arg | Thr | Ala | Ser | Arg |     |     |     |     |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     |     |     |     |

<210> 3953

<211> 2900

<212> DNA

<213> Homo sapiens

<400> 3953

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 2900

&lt;210&gt; 3954

&lt;211&gt; 627

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3954

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 35 40 45  
 Val Ser Glu Ala Val Pro Leu Gly Ala Ala Ala Leu Val Pro Ala Phe  
 50 55 60  
 Leu Tyr Pro Phe Phe Gly Val Leu Arg Ser Asn Glu Val Ala Ala Glu  
 65 70 75 80  
 Tyr Phe Lys Asn Thr Thr Leu Leu Leu Val Gly Val Ile Cys Val Ala  
 85 90 95  
 Ala Ala Val Glu Lys Trp Asn Leu His Lys Arg Ile Ala Leu Arg Met  
 100 105 110  
 Val Leu Met Ala Gly Ala Lys Pro Gly Met Leu Leu Leu Cys Phe Met  
 115 120 125  
 Cys Cys Thr Thr Leu Leu Ser Met Trp Leu Ser Asn Thr Ser Thr Thr  
 130 135 140  
 Ala Met Val Met Pro Ile Val Glu Ala Val Leu Gln Glu Leu Val Ser  
 145 150 155 160  
 Ala Glu Asp Glu Gln Leu Val Ala Gly Asn Ser Asn Thr Glu Glu Ala  
 165 170 175  
 Glu Pro Ile Ser Leu Asp Val Lys Asn Ser Gln Pro Ser Leu Glu Leu  
 180 185 190  
 Ile Phe Val Asn Glu Asp Arg Ser Asn Ala Asp Leu Thr Thr Leu Met  
 195 200 205  
 His Asn Glu Asn Leu Asn Gly Val Pro Ser Ile Thr Asn Pro Ile Lys  
 210 215 220  
 Thr Ala Asn Gln His Gln Gly Lys Lys Gln His Pro Ser Gln Glu Lys  
 225 230 235 240  
 Pro Gln Val Leu Thr Pro Ser Pro Arg Lys Gln Lys Leu Asn Arg Lys  
 245 250 255  
 Tyr Arg Ser His Asp Gln Met Ile Cys Lys Cys Leu Ser Leu Ser  
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 275 280 285  
 Ser Thr Ser Leu Ile Phe Leu Glu His Phe Asn Asn Gln Tyr Pro Ala  
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 Ala Glu Val Val Asn Phe Gly Thr Trp Phe Leu Phe Ser Phe Pro Ile  
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 Ser Leu Ile Met Leu Val Val Ser Trp Phe Trp Met His Trp Leu Phe  
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 370 375 380  
 Ile Leu Met Thr Val Leu Trp Phe Thr Arg Glu Pro Gly Phe Val Pro  
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 405 410 415  
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 Gly Thr Glu Pro Ile Ile Thr Trp Lys Asp Phe Gln Lys Thr Met Pro



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 465 470 475 480  
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 Leu Ser Ser Leu Pro Pro Trp Ala Val Thr Leu Leu Ala Cys Ile Leu  
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 515 520 525  
 Phe Leu Pro Ile Leu Cys Ser Leu Ser Glu Thr Met His Ile Asn Pro  
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 545 550 555 560  
 Leu Pro Val Gly Asn Pro Pro Asn Ala Ile Val Phe Ser Tyr Gly His  
 565 570 575  
 Cys Gln Ile Lys Asp Met Val Lys Ala Gly Leu Gly Val Asn Val Ile  
 580 585 590  
 Gly Leu Val Ile Val Met Val Ala Ile Asn Thr Trp Gly Val Ser Leu  
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<210> 3955  
 <211> 522  
 <212> DNA  
 <213> Homo sapiens

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 360  
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 420  
 ttaagcacag atttctcttc ccagaaggga gtgaaggggt tgcctcttaa cattcaagtt  
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 <212> PRT  
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&lt;400&gt; 3956

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Ser Thr Met Thr Tyr Leu Asn Lys Gly Gln Phe Tyr Pro Ile Thr Leu
          35           40           45
Lys Glu Val Ser Ser Ser Glu Asn Pro Ser Ser His Ser Lys Val Arg
          50           55           60
Ser Val Ile Met Val Val Phe Ala Glu Asp Lys Ser Arg Glu Asp Gln
65           70           75           80
Leu Arg His Trp Lys Tyr Trp His Ser Arg Gln His Thr Ala Lys Gln
          85           90           95
Arg Cys Ile Asp Ile Ala Asp Tyr Lys Glu Ser Phe Asn Thr Ile Ser
          100          105          110
Asn Ile Glu Glu Ile Ala Tyr Asn Ala Ile Ser Phe Thr Trp Asp Ile
          115          120          125
Asn Asp Glu Ala Lys Val Phe Ile Ser Val Asn Cys Leu Ser Thr Asp
          130          135          140
Phe Ser Ser Gln Lys Gly Val Lys Gly Leu Pro Leu Asn Ile Gln Val
145          150          155          160
Asp Thr Tyr Ser Tyr Asn Asn Arg Ser Asn Lys Pro Val His
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&lt;210&gt; 3957

&lt;211&gt; 3891

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3957

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&lt;210&gt; 3958

<211> 440  
 <212> PRT  
 <213> Homo sapiens

<400> 3958

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Cys | Arg | Glu | Ala | Asn | Asp | Ala | Leu | Asn | Ala | Tyr | Val | Cys | Lys | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Pro | Gln | His | Glu | Glu | Ile | Cys | Leu | Gly | Leu | Phe | Thr | Leu | Ile | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Glu | Pro | Ala | Gln | Ala | Gln | Lys | Cys | Tyr | Arg | Asp | Leu | Ala | Leu | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |     |
| Ser | Arg | Asp | Gly | Met | Asn | Ile | Val | Leu | Asn | Lys | Ile | Asn | Gln | Ile | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Met | Glu | Lys | Tyr | Leu | Lys | Leu | Gln | Asp | Thr | Cys | Arg | Thr | Gln | Leu | Val |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Trp | Leu | Val | Arg | Glu | Leu | Val | Lys | Ser | Gly | Val | Leu | Gly | Ala | Asp | Gly |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Val | Cys | Met | Thr | Phe | Met | Lys | Gln | Ile | Ala | Gly | Gly | Asp | Val | Thr | Ala |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Lys | Asn | Ile | Trp | Leu | Ala | Glu | Ser | Val | Leu | Asp | Ile | Leu | Thr | Glu | Gln |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Arg | Glu | Trp | Val | Leu | Lys | Ser | Ser | Ile | Leu | Ile | Ala | Met | Ala | Val | Tyr |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Thr | Tyr | Leu | Arg | Leu | Ile | Val | Asp | His | His | Gly | Thr | Ala | Gln | Leu | Gln |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Ala | Leu | Arg | Gln | Lys | Glu | Val | Asp | Phe | Cys | Ile | Ser | Leu | Leu | Arg | Glu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Arg | Phe | Met | Glu | Cys | Leu | Met | Ile | Gly | Arg | Asp | Leu | Val | Arg | Leu | Leu |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Gln | Asn | Val | Ala | Arg | Ile | Pro | Glu | Phe | Glu | Leu | Leu | Trp | Lys | Asp | Ile |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ile | His | Asn | Pro | Gln | Ala | Leu | Ser | Pro | Gln | Phe | Thr | Gly | Ile | Leu | Gln |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Leu | Leu | Gln | Ser | Arg | Thr | Ser | Arg | Lys | Phe | Leu | Ala | Cys | Arg | Leu | Thr |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Pro | Asp | Met | Glu | Thr | Lys | Leu | Leu | Phe | Met | Thr | Ser | Arg | Val | Arg | Phe |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |     |
| Gly | Gln | Gln | Lys | Arg | Tyr | Gln | Asp | Trp | Phe | Gln | Arg | Gln | Tyr | Leu | Ser |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Thr | Pro | Asp | Ser | Gln | Ser | Leu | Arg | Cys | Asp | Leu | Ile | Arg | Tyr | Ile | Cys |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Gly | Val | Val | His | Pro | Ser | Asn | Glu | Val | Leu | Ser | Ser | Asp | Ile | Leu | Pro |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Arg | Trp | Ala | Ile | Ile | Gly | Trp | Leu | Leu | Thr | Thr | Cys | Thr | Ser | Asn | Val |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     | 320 |     |
| Ala | Ala | Ser | Asn | Ala | Lys | Leu | Ala | Leu | Phe | Tyr | Asp | Trp | Leu | Phe | Phe |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |     |
| Ser | Pro | Asp | Lys | Asp | Ser | Ile | Met | Asn | Ile | Glu | Pro | Ala | Ile | Leu | Val |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Met | His | His | Ser | Met | Lys | Pro | His | Pro | Ala | Ile | Thr | Ala | Thr | Leu | Leu |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Asp | Phe | Met | Cys | Arg | Ile | Ile | Pro | Asn | Phe | Tyr | Pro | Pro | Leu | Glu | Gly |
|     | 370 |     |     |     |     | 375 |     |     |     | 380 |     |     |     |     |     |
| His | Val | Arg | Gln | Gly | Val | Phe | Ser | Ser | Leu | Asn | His | Ile | Val | Glu | Lys |

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385          390          395          400
Arg Val Leu Ala Cys Lys Lys Tyr Trp Leu Tyr Leu Arg Leu Leu Gly
          405          410          415
Ile Cys Leu Leu Xaa Leu Leu Glu Glu Phe Leu Ser Cys His Arg Ile
          420          425          430
Thr Lys Thr Pro Ser Ser Pro Val
          435          440

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<210> 3959
<211> 752
<212> DNA
<213> Homo sapiens

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180
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600
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660
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<210> 3960
<211> 94
<212> PRT
<213> Homo sapiens

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<400> 3960
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Gly Pro Asn Ser Pro Leu Asp Phe Leu Phe Ser Phe Gln Asn Ala Val
20          25          30
Ser Lys Tyr Gly Ser Gln Phe Gln Gly Asn Ser Gln His Asp Ala Leu
35          40          45
Glu Phe Leu Leu Trp Leu Leu Asp Arg Val His Glu Asp Leu Glu Gly

```

|   |    |    |    |    |
|---|----|----|----|----|
| 50  |    | 55 |    | 60 |
| Ser Ser Arg Trp Ala Arg Cys Arg Arg Ser Phe Arg Leu Lys Pro Leu |    |    |    |    |
| 65  | 70 | 75 | 80 |    |
| Lys Pro Leu Arg Thr Ala Cys His His Gln Leu Ser Phe Leu         |    |    |    |    |
|   | 85 | 90 |    |    |

&lt;210&gt; 3961

&lt;211&gt; 2505

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3961

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1260

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 1980  
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 2460  
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 2505

&lt;210&gt; 3962

&lt;211&gt; 306

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3962

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Lys | Asn | Ile | Glu | Gly | Gln | Met | Thr | Pro | Tyr | Tyr | Pro | Val | Gly | Met |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gly | Asn | Gly | Thr | Pro | Cys | Ser | Leu | Lys | Gln | Asn | Arg | Pro | Arg | Ser | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Val | Met | Tyr | Ile | Cys | His | Pro | Glu | Ser | Lys | His | Glu | Ile | Leu | Ser |



```

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Val Ala Glu Val Thr Thr Cys Glu Tyr Glu Val Val Ile Leu Thr Pro
      50              55              60
Leu Leu Cys Ser His Pro Lys Tyr Arg Phe Arg Ala Ser Pro Val Asn
      65              70              75              80
Asp Ile Phe Cys Gln Ser Leu Pro Gly Ser Pro Phe Lys Pro Leu Thr
      85              90              95
Leu Arg Gln Leu Glu Gln Gln Glu Glu Ile Leu Arg Val Pro Phe Arg
      100             105             110
Arg Asn Lys Glu Glu Asp Leu Gln Ser Thr Lys Glu Glu Arg Phe Pro
      115             120             125
Ala Ile His Lys Ser Ile Ala Ile Gly Ser Gln Pro Val Leu Thr Val
      130             135             140
Gly Thr Thr His Ile Ser Lys Leu Thr Asp Asp Gln Leu Ile Lys Glu
      145             150             155             160
Phe Leu Ser Gly Ser Tyr Cys Phe Arg Gly Gly Val Gly Trp Trp Lys
      165             170             175
Tyr Glu Phe Cys Tyr Gly Lys His Val His Gln Tyr His Glu Asp Lys
      180             185             190
Asp Ser Gly Lys Thr Ser Val Val Val Gly Thr Trp Asn Gln Glu Glu
      195             200             205
His Ile Glu Trp Ala Lys Lys Asn Thr Ala Arg Ala Tyr His Leu Gln
      210             215             220
Asp Asp Gly Thr Gln Thr Val Arg Met Val Ser His Phe Tyr Gly Asn
      225             230             235             240
Gly Asp Ile Cys Asp Ile Thr Asp Lys Pro Arg Gln Val Thr Val Lys
      245             250             255
Leu Lys Cys Lys Glu Ser Asp Ser Pro His Ala Val Thr Val Tyr Met
      260             265             270
Leu Glu Pro His Ser Cys Gln Tyr Ile Leu Gly Val Glu Ser Pro Val
      275             280             285
Ile Cys Lys Ile Leu Asp Thr Ala Asp Glu Asn Gly Leu Leu Ser Leu
      290             295             300
Pro Asn
305

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&lt;210&gt; 3963

&lt;211&gt; 1513

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3963

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<210> 3964  
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 <212> PRT  
 <213> Homo sapiens

<400> 3964  
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 Gln Phe Ser Asn Ile Ser Phe Ser Arg Asp Ser Pro Glu Glu Asn Val  
 35 40 45  
 Gln Ser Asn Lys Met Asp Leu Ser Gly Gly Met Leu Gln Asp Lys Arg

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |  |
| Met | Glu | Ile | Asp | Lys | His | Ser | Leu | Asn | Ile | Gly | Asp | Tyr | Asn | Arg | Thr |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |
| Val | Gly | Lys | Gly | Pro | Gly | Ser | Arg | Pro | Gln | Ile | Ser | Lys | Glu | Ser | Ser |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |
| Met | Glu | Arg | Asn | Pro | Tyr | Phe | Asp | Lys | Asn | Gly | Asn | Pro | Ser | Met | Phe |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |
| Gly | Val | Gly | Asn | Thr | Ala | Ala | Gln | Pro | Arg | Gly | Met | Gln | Gln | Pro | Pro |  |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |
| Ala | Gln | Pro | Leu | Ser | Ser | Ser | Gln | Pro | Asn | Leu | Arg | Ala | Gln | Val | Pro |  |
| 130 |     |     |     |     |     |     | 135 |     |     |     | 140 |     |     |     |     |  |
| Pro | Pro | Leu | Leu | Ser | Pro | Gln | Val | Pro | Val | Ser | Leu | Leu | Lys | Tyr | Ala |  |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |  |
| Pro | Asn | Asn | Gly | Gly | Leu | Asn | Pro | Leu | Phe | Gly | Pro | Gln | Gln | Val | Ala |  |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |  |
| Met | Leu | Asn | Gln | Leu | Ser | Gln | Leu | Asn | Gln | Leu | Ser | Gln | Ile | Ser | Gln |  |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |  |
| Leu | Gln | Arg | Leu | Leu | Ala | Gln | Gln | Gln | Arg | Ala | Gln | Ser | Gln | Arg | Ser |  |
|     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |  |
| Val | Pro | Ser | Gly | Asn | Arg | Pro | Gln | Gln | Asp | Gln | Gln | Gly | Arg | Pro | Leu |  |
| 210 |     |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |
| Ser | Val | Gln | Gln | Gln | Met | Met | Gln | Gln | Ser | Arg | Gln | Leu | Asp | Pro | Asn |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |  |
| Leu | Leu | Val | Lys | Gln | Gln | Thr | Pro | Pro | Ser | Gln | Gln | Gln | Pro | Leu | His |  |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |  |
| Gln | Pro | Ala | Met | Lys | Ser | Phe | Leu | Asp | Asn | Val | Met | Pro | His | Thr | Thr |  |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |     |  |
| Pro | Glu | Leu | Gln | Lys | Gly | Pro | Ser | Pro | Ile | Asn | Ala | Phe | Ser | Asn | Phe |  |
|     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |  |
| Pro | Ile | Gly | Leu | Asn | Ser | Asn | Leu | Asn | Val | Asn | Met | Asp | Met | Asn | Ser |  |
|     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |     |  |
| Ile | Lys | Glu | Pro | Gln | Ser | Arg | Leu | Arg | Lys | Trp | Thr | Thr | Val | Asp | Ser |  |
| 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |     |  |
| Ile | Ser | Val | Asn | Thr | Ser | Leu | Asp | Gln | Asn | Ser | Ser | Lys | His | Gly | Ala |  |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |  |
| Ile | Ser | Ser | Gly | Phe | Arg | Leu | Glu | Glu | Ser | Pro | Phe | Val | Pro | Tyr | Asp |  |
|     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |     |  |
| Phe | Met | Asn | Ser | Ser | Thr | Ser | Pro | Ala | Ser | Pro | Pro | Gly | Ser | Ile | Gly |  |
|     | 355 |     |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |  |
| Asp | Gly | Trp | Pro | Arg | Ala | Lys | Ser | Pro | Asn | Gly | Ser | Ser | Ser | Val | Asn |  |
| 370 |     |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |
| Trp | Pro | Pro | Glu | Phe | Arg | Pro | Gly | Glu | Pro | Trp | Lys | Gly | Tyr | Pro | Asn |  |
| 385 |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |     |  |
| Ile | Asp | Pro | Glu | Thr | Asp | Pro | Tyr | Val | Thr | Pro | Gly | Ser | Val | Ile | Asn |  |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     | 415 |     |  |
| Asn | Leu | Pro | Ile | Asn | Thr | Val | Arg | Glu | Val | Asp | His | Leu | Arg | Asp | Arg |  |
|     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |  |
| Asn | Ser | Gly | Thr |     |     |     |     |     |     |     |     |     |     |     |     |  |
|     | 435 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |

&lt;210&gt; 3965

&lt;211&gt; 2850

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

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240  
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300  
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360  
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420  
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720  
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2760  
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2820  
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2850

&lt;210&gt; 3966

&lt;211&gt; 782

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3966

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Pro | Pro | Leu | Ala | Pro | Arg | Pro | Ala | His | Val | Pro | Gly | Glu | Ala |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     | 15  |     |     |     |
| Gly | Pro | Arg | Arg | Thr | Arg | Glu | Ser | Arg | Pro | Gly | Ala | Val | Ser | Phe | Ala |

3128

|   |     |     |     |     |
|---|-----|-----|-----|-----|
| 450   |     | 455 |     | 460 |
| Gly Pro Tyr Ile Phe Leu Glu Gly Lys Lys Pro Leu Leu Tyr Phe Pro |     |     |     |     |
| 465   |     | 470 |     | 475 |
| Asp Thr Pro Pro Pro Leu Glu Lys Ala Glu Ala Ala Leu Phe         |     |     |     | 480 |
|   | 485 |     | 490 | 495 |
| Lys Gly Lys Trp Asp Asp Glu Ala Arg Glu Met Ala Pro Pro Pro Ala |     |     |     |     |
|   | 500 |     | 505 | 510 |
| Pro Leu Leu Ala Pro Arg Pro Gly Glu Thr Arg Pro Gly Cys Arg Lys |     |     |     |     |
|   | 515 |     | 520 | 525 |
| Pro Gly Thr Val Ser Phe Ala Asp Val Ala Val Tyr Phe Ser Pro Glu |     |     |     |     |
|   | 530 |     | 535 | 540 |
| Glu Trp Gly Cys Leu Arg Pro Ala Gln Arg Ala Leu Tyr Arg Asp Val |     |     |     |     |
| 545   |     | 550 |     | 555 |
| Met Gln Glu Thr Tyr Gly His Leu Gly Ala Leu Gly Phe Pro Gly Pro |     |     |     | 560 |
|   | 565 |     | 570 | 575 |
| Lys Pro Ala Leu Ile Ser Trp Met Glu Gln Glu Ser Glu Ala Trp Ser |     |     |     |     |
|   | 580 |     | 585 | 590 |
| Pro Ala Ala Gln Asp Pro Glu Lys Gly Glu Arg Leu Gly Gly Ala Arg |     |     |     |     |
|   | 595 |     | 600 | 605 |
| Arg Gly Asp Val Pro Asn Arg Lys Glu Glu Glu Pro Glu Glu Val Pro |     |     |     |     |
|   | 610 |     | 615 | 620 |
| Arg Ala Lys Gly Pro Arg Lys Ala Pro Val Lys Glu Ser Pro Glu Val |     |     |     |     |
| 625   |     | 630 |     | 635 |
| Leu Val Glu Arg Asn Pro Asp Pro Ala Ile Ser Val Ala Pro Ala Arg |     |     |     |     |
|   | 645 |     | 650 | 655 |
| Ala Gln Pro Pro Lys Asn Ala Ala Trp Asp Pro Thr Thr Gly Ala Gln |     |     |     |     |
|   | 660 |     | 665 | 670 |
| Pro Pro Ala Pro Ile Pro Ser Met Asp Ala Gln Ala Gly Gln Arg Arg |     |     |     |     |
|   | 675 |     | 680 | 685 |
| His Val Cys Thr Asp Cys Gly Arg Arg Phe Thr Tyr Pro Ser Leu Leu |     |     |     |     |
|   | 690 |     | 695 | 700 |
| Val Ser His Arg Arg Met His Ser Gly Glu Arg Pro Phe Pro Cys Pro |     |     |     |     |
| 705   |     | 710 |     | 715 |
| Glu Cys Gly Met Arg Phe Lys Arg Lys Phe Ala Val Glu Ala His Gln |     |     |     |     |
|   | 725 |     | 730 | 735 |
| Trp Ile His Arg Ser Cys Ser Gly Gly Arg Arg Gly Arg Arg Pro Gly |     |     |     |     |
|   | 740 |     | 745 | 750 |
| Ile Arg Ala Val Pro Arg Ala Pro Val Arg Gly Asp Arg Asp Pro Pro |     |     |     |     |
|   | 755 |     | 760 | 765 |
| Val Leu Phe Arg His Tyr Pro Asp Ile Phe Glu Glu Cys Gly         |     |     |     |     |
|   | 770 |     | 775 | 780 |

&lt;210&gt; 3967

&lt;211&gt; 892

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3967

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atcctgcccc gtggccgcgg ccgtctcgta ggggacaccg tgggtgttaa ggatggccag  
120

tactggatcc gaggccggac ctacgtggac atcatcaaga ctggaggcta caaggtcagc  
180

gccctggagg tggagtggca cctgctggcc caccacagca tcacagatgt ggctgtgatt  
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 420  
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 892

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 <211> 151  
 <212> PRT  
 <213> Homo sapiens

<400> 3968  
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 20 25 30  
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 35 40 45  
 Val Asp Ile Ile Lys Thr Gly Gly Tyr Lys Val Ser Ala Leu Glu Val  
 50 55 60  
 Glu Trp His Leu Leu Ala His Pro Ser Ile Thr Asp Val Ala Val Ile  
 65 70 75 80  
 Gly Val Pro Asp Met Thr Trp Gly Gln Arg Val Thr Ala Val Val Thr  
 85 90 95  
 Leu Arg Glu Gly His Ser Leu Ser His Arg Glu Leu Lys Glu Trp Ala  
 100 105 110  
 Arg Asn Val Leu Ala Pro Tyr Ala Val Pro Ser Glu Leu Val Leu Val  
 115 120 125  
 Glu Glu Ile Pro Arg Asn Gln Met Gly Lys Ile Asp Lys Lys Ala Leu  
 130 135 140  
 Ile Arg His Phe His Pro Ser  
 145 150

<210> 3969  
 <211> 915



&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3969

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180
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240
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720
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780
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900
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915

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&lt;210&gt; 3970

&lt;211&gt; 89

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3970

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Gly Gly Ala Pro Ile Phe Leu Pro Ser Asp Gly Gln Ala Leu Val
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Leu Gly Arg Gly Pro Leu Thr Gln Val Thr Asp Arg Lys Cys Ser Arg
35     40     45
Thr Gln Val Glu Leu Val Ala Asp Pro Glu Thr Arg Thr Val Ala Val
50     55     60
Lys Gln Val Ser Val Pro Leu Gln Gly Pro Ala Arg Pro Gly Asp Gly
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Ile Trp Gly Gly Ile Ala Ser Arg Gln

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85

<210> 3971  
 <211> 433  
 <212> DNA  
 <213> Homo sapiens

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<210> 3972  
 <211> 120  
 <212> PRT  
 <213> Homo sapiens

<400> 3972  
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 Trp Pro Cys Ser Ser Ser Thr Gln Ala His Pro Gly Pro Leu His Leu  
 35 40 45  
 Pro Phe Ser Leu Ser Gly Asp Leu Pro Pro Ser Phe Lys Ser Leu His  
 50 55 60  
 Lys Gly His His Pro Met Ser Glu Gly Phe Ser Asp Tyr Pro Phe Pro  
 65 70 75 80  
 Ser Arg Ala Leu Pro Ser Met Leu His Phe Phe Pro Arg Ala Leu Asn  
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 Thr Thr Tyr Leu Ser Phe Ile Phe Ser Leu Ser Phe Phe Cys Leu Leu  
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<210> 3973  
 <211> 984  
 <212> DNA  
 <213> Homo sapiens

<400> 3973

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 780  
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<210> 3974

<211> 328

<212> PRT

<213> Homo sapiens

<400> 3974

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Gly | Leu | Ile | His | Ala | Asp | Leu | Lys | Pro | Glu | Asn | Ile | Met | Leu | Val |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Asp | Pro | Ser | Arg | Gln | Pro | Tyr | Arg | Val | Lys | Val | Ile | Asp | Phe | Gly | Ser |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |
| Ala | Ser | His | Val | Ser | Lys | Ala | Val | Cys | Ser | Thr | Tyr | Leu | Gln | Ser | Arg |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Tyr | Tyr | Arg | Ala | Pro | Glu | Ile | Ile | Leu | Gly | Leu | Pro | Phe | Cys | Glu | Ala |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Ile | Asp | Met | Trp | Ser | Leu | Gly | Cys | Val | Ile | Ala | Glu | Leu | Phe | Leu | Gly |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |
| Trp | Pro | Leu | Tyr | Pro | Gly | Ala | Ser | Glu | Tyr | Asp | Gln | Ile | Arg | Tyr | Ile |
|     |     |     | 85  |     |     |     | 90  |     |     |     |     | 95  |     |     |     |
| Ser | Gln | Thr | Gln | Gly | Leu | Pro | Ala | Glu | Tyr | Leu | Leu | Ser | Ala | Gly | Thr |

|   |     |  |     |  |     |
|---|-----|--|-----|--|-----|
|   | 100 |  | 105 |  | 110 |
| Lys Thr Thr Arg Phe Phe Asn Arg Asp Thr Asp Ser Pro Tyr Pro Leu |     |  |     |  |     |
| 115   |     |  | 120 |  | 125 |
| Trp Arg Leu Lys Thr Pro Asp Asp His Glu Ala Glu Thr Gly Ile Lys |     |  |     |  |     |
| 130   |     |  | 135 |  | 140 |
| Ser Lys Glu Ala Arg Lys Tyr Ile Phe Asn Cys Leu Asp Asp Met Ala |     |  |     |  |     |
| 145   |     |  | 150 |  | 155 |
| Gln Val Asn Met Thr Thr Asp Leu Glu Gly Ser Asp Met Leu Val Glu |     |  |     |  |     |
| 165   |     |  | 170 |  | 175 |
| Lys Ala Asp Arg Arg Glu Phe Ile Asp Leu Leu Lys Lys Met Leu Thr |     |  |     |  |     |
| 180   |     |  | 185 |  | 190 |
| Ile Asp Ala Asp Lys Arg Ile Thr Pro Ile Glu Thr Leu Asn His Pro |     |  |     |  |     |
| 195   |     |  | 200 |  | 205 |
| Phe Val Thr Met Thr His Leu Leu Asp Phe Pro His Ser Thr His Val |     |  |     |  |     |
| 210   |     |  | 215 |  | 220 |
| Lys Ser Cys Phe Gln Asn Met Glu Ile Cys Lys Arg Arg Val Asn Met |     |  |     |  |     |
| 225   |     |  | 230 |  | 235 |
| Tyr Asp Thr Val Asn Gln Ser Lys Thr Pro Phe Ile Thr His Val Ala |     |  |     |  |     |
| 245   |     |  | 250 |  | 255 |
| Pro Ser Thr Ser Thr Asn Leu Thr Met Thr Phe Asn Asn Gln Leu Thr |     |  |     |  |     |
| 260   |     |  | 265 |  | 270 |
| Thr Val His Asn Gln Pro Ser Ala Ala Ser Met Ala Ala Ala Ala Gln |     |  |     |  |     |
| 275   |     |  | 280 |  | 285 |
| Arg Ser Met Pro Leu Gln Thr Gly Thr Ala Gln Ile Cys Ala Arg Pro |     |  |     |  |     |
| 290   |     |  | 295 |  | 300 |
| Asp Pro Phe Gln Gln Ala Leu Ile Val Cys Pro Pro Gly Leu Gln Ala |     |  |     |  |     |
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| Leu Gln Ala Ser Pro Phe Thr Arg                                 |     |  |     |  | 320 |
| 325   |     |  |     |  |     |

<210> 3975  
 <211> 593  
 <212> DNA  
 <213> Homo sapiens

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 180  
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 300  
 tgcgtgagcc ccacagatgc ccgctcgctt gccagactta aaagtctgtg cccctccccg  
 360  
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 420  
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 480  
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593

<210> 3976

<211> 101

<212> PRT

<213> Homo sapiens

<400> 3976

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Phe | Ser | Leu | Leu | Glu | Gly | Pro | Ala | Ser | Leu | Gln | Pro | Pro | His |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Arg | Glu | Ser | Leu | Pro | Leu | His | Ser | Leu | Pro | Arg | Asp | Gly | Ser | Trp | Gly |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Lys | Gly | Ala | Trp | Ala | Ser | Ala | Ser | Leu | Gln | Ala | Ala | Ser | Asn | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gln | Ser | Gly | Phe | Gly | Cys | Pro | Gln | Cys | Ser | Pro | Glu | Ala | Ala | Ala | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| His | Pro | Thr | Ile | Leu | Leu | Arg | Arg | Leu | Gly | Ile | Ile | Gly | Leu | Pro |     |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |     |
| Trp | Lys | Gly | Ser | Ser | Arg | Arg | Gly | Leu | Arg | Glu | Pro | His | Arg | Cys | Pro |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Leu | Ala | Cys | Gln | Thr |     |     |     |     |     |     |     |     |     |     |     |
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<210> 3977

<211> 2668

<212> DNA

<213> Homo sapiens

<400> 3977

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180  
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240  
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720

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gaaaaaatcc tggccgtttg tcatggggtc atgtataaac agctctcagc ctggatgctc  
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1140  
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1200  
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2340

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<210> 3978

<211> 667

<212> PRT

<213> Homo sapiens

<400> 3978

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| Met | Ile | His | Glu | Leu | Leu | Leu | Ala | Leu | Ser | Gly | Tyr | Pro | Gly | Ser | Ile |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Phe | Thr | Trp | Asn | Lys | Arg | Ser | Gly | Leu | Gln | Val | Ser | Gln | Asp | Phe | Pro |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Phe | Leu | His | Pro | Ser | Glu | Thr | Ser | Val | Leu | Asn | Arg | Leu | Cys | Arg | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |
| Gly | Thr | Asp | Tyr | Ile | Arg | Phe | Thr | Glu | Phe | Ile | Glu | Gln | Tyr | Thr | Gly |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| His | Val | Gln | Gln | Gln | Asp | His | His | Pro | Ser | Gln | Gln | Gly | Gln | Gly | Gly |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Leu | His | Gly | Ile | Tyr | Leu | Arg | Ala | Phe | Cys | Thr | Gly | Leu | Asp | Ser | Val |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Leu | Gln | Pro | Tyr | Arg | Gln | Ala | Leu | Leu | Asp | Leu | Glu | Gln | Glu | Phe | Leu |
|     |     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |
| Gly | Asp | Pro | His | Leu | Ser | Ile | Ser | His | Val | Asn | Tyr | Phe | Leu | Asp | Gln |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |
| Phe | Gln | Leu | Leu | Phe | Pro | Ser | Val | Met | Val | Val | Val | Glu | Gln | Ile | Lys |
|     |     | 130 |     |     |     |     | 135 |     |     |     |     |     | 140 |     |     |
| Ser | Gln | Lys | Ile | His | Gly | Cys | Gln | Ile | Leu | Glu | Thr | Val | Tyr | Lys | His |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ser | Cys | Gly | Gly | Leu | Pro | Pro | Val | Arg | Ser | Ala | Leu | Glu | Lys | Ile | Leu |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ala | Val | Cys | His | Gly | Val | Met | Tyr | Lys | Gln | Leu | Ser | Ala | Trp | Met | Leu |
|     |     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |
| His | Gly | Leu | Leu | Leu | Asp | Gln | His | Glu | Glu | Phe | Phe | Ile | Lys | Gln | Gly |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |
| Pro | Ser | Ser | Gly | Asn | Val | Ser | Ala | Gln | Pro | Glu | Glu | Asp | Glu | Glu | Asp |
|     |     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |
| Leu | Gly | Ile | Gly | Gly | Leu | Thr | Gly | Lys | Gln | Leu | Arg | Glu | Leu | Gln | Asp |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Leu | Arg | Leu | Ile | Glu | Glu | Glu | Asn | Met | Leu | Ala | Pro | Ser | Leu | Lys | Gln |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Phe | Ser | Leu | Arg | Val | Glu | Ile | Leu | Pro | Ser | Tyr | Ile | Pro | Val | Arg | Val |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ala | Glu | Lys | Ile | Leu | Phe | Val | Gly | Glu | Ser | Val | Gln | Met | Phe | Glu | Asn |

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      275              280              285
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Asp Thr Phe Ala Ala Glu Leu His Arg Leu Lys Gln Gln Pro Leu Phe
  305              310              315              320
Ser Leu Val Asp Phe Glu Gln Val Val Asp Arg Ile Arg Ser Thr Val
      325              330              335
Ala Glu His Leu Trp Lys Leu Met Val Glu Glu Ser Asp Leu Leu Gly
      340              345              350
Gln Leu Lys Ile Ile Lys Asp Phe Tyr Leu Leu Gly Arg Gly Glu Leu
      355              360              365
Phe Gln Ala Phe Ile Asp Thr Ala Gln His Met Leu Lys Thr Pro Pro
      370              375              380
Thr Ala Val Thr Glu His Asp Val Asn Val Ala Phe Gln Gln Ser Ala
  385              390              395              400
His Lys Val Leu Leu Asp Asp Asp Asn Leu Leu Pro Leu Leu His Leu
      405              410              415
Thr Ile Glu Tyr His Xaa Glu Arg Ser Thr Lys Met Leu Leu Arg Xaa
      420              425              430
Arg Glu Gly Pro Ser Arg Glu Thr Ser Pro Arg Glu Ala Pro Ala Ser
      435              440              445
Gly Trp Ala Ala Leu Gly Leu Ser Tyr Lys Val Gln Trp Pro Leu His
      450              455              460
Ile Leu Phe Thr Pro Ala Val Leu Glu Lys Tyr Asn Val Val Phe Lys
  465              470              475              480
Tyr Leu Leu Ser Val Arg Arg Val Gln Ala Glu Leu Gln His Cys Trp
      485              490              495
Ala Leu Gln Met Gln Arg Lys His Leu Lys Ser Asn Gln Thr Asp Ala
      500              505              510
Ile Lys Trp Arg Leu Arg Asn His Met Ala Phe Leu Val Asp Asn Leu
      515              520              525
Gln Tyr Tyr Leu Gln Val Asp Val Leu Glu Ser Gln Phe Ser Gln Leu
      530              535              540
Leu His Gln Ile Asn Ser Thr Arg Asp Phe Glu Ser Ile Arg Leu Ala
  545              550              555              560
His Asp His Phe Leu Ser Asn Leu Leu Ala Gln Ser Phe Ile Leu Leu
      565              570              575
Lys Pro Val Phe His Cys Leu Asn Glu Ile Leu Asp Leu Cys His Ser
      580              585              590
Phe Cys Ser Leu Val Ser Gln Asn Leu Gly Pro Leu Asp Glu Arg Gly
      595              600              605
Ala Ala Gln Leu Ser Ile Leu Val Lys Gly Phe Ser Arg Gln Ser Ser
      610              615              620
Leu Leu Phe Lys Ile Leu Ser Ser Val Arg Asn His Gln Ile Asn Ser
  625              630              635              640
Asp Leu Ala Gln Leu Leu Leu Arg Leu Asp Tyr Asn Lys Tyr Tyr Thr
      645              650              655
Gln Ala Gly Gly Thr Leu Gly Ser Phe Gly Met
      660              665

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&lt;210&gt; 3979

&lt;211&gt; 2746

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens



&lt;400&gt; 3979

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180  
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240  
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300  
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360  
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420  
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540  
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&lt;213&gt; Homo sapiens

&lt;400&gt; 3980

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&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3982

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&lt;210&gt; 3984

&lt;211&gt; 484

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3984

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | His | Gly | Glu | Ile | Thr | Glu | Glu | Arg | Asp | Ile | Leu | Ser | Arg | Gln | Gln |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gly | Asp | His | Val | Ala | Arg | Ile | Leu | Glu | Leu | Glu | Asp | Asp | Ile | Gln | Thr |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ile | Ser | Glu | Lys | Val | Leu | Thr | Lys | Glu | Val | Glu | Leu | Asp | Arg | Leu | Arg |

|   |     |     |
|---|-----|-----|
| 35  | 40  | 45  |
| Asp Thr Val Lys Ala Leu Thr Arg Glu Gln Glu Lys Leu Leu Gly Gln |     |     |
| 50  | 55  | 60  |
| Leu Lys Glu Val Gln Ala Asp Lys Glu Gln Ser Glu Ala Glu Leu Gln |     |     |
| 65  | 70  | 75  |
| Val Ala Gln Gln Glu Asn His His Leu Asn Leu Asp Leu Lys Glu Ala |     |     |
| 85  | 90  | 95  |
| Lys Ser Trp Gln Glu Glu Gln Ser Ala Gln Ala Gln Arg Leu Lys Asp |     |     |
| 100   | 105 | 110 |
| Lys Val Ala Gln Met Lys Asp Thr Leu Gly Gln Ala Gln Gln Arg Val |     |     |
| 115   | 120 | 125 |
| Ala Glu Leu Glu Pro Leu Lys Glu Gln Leu Arg Gly Ala Gln Glu Leu |     |     |
| 130   | 135 | 140 |
| Ala Ala Ser Ser Gln Gln Lys Ala Thr Leu Leu Gly Glu Glu Leu Ala |     |     |
| 145   | 150 | 155 |
| Ser Ala Ala Ala Ala Arg Asp Arg Thr Ile Ala Glu Leu His Arg Ser |     |     |
| 165   | 170 | 175 |
| Arg Leu Glu Val Ala Glu Val Asn Gly Arg Leu Ala Glu Leu Gly Leu |     |     |
| 180   | 185 | 190 |
| His Leu Lys Glu Glu Lys Cys Gln Trp Ser Lys Glu Arg Ala Gly Leu |     |     |
| 195   | 200 | 205 |
| Leu Gln Ser Val Glu Ala Glu Lys Asp Lys Ile Leu Lys Leu Ser Ala |     |     |
| 210   | 215 | 220 |
| Glu Ile Leu Arg Leu Glu Lys Ala Val Gln Glu Glu Lys Thr Gln Asn |     |     |
| 225   | 230 | 235 |
| Gln Val Phe Lys Thr Glu Leu Ala Arg Glu Lys Asp Ser Ser Leu Val |     |     |
| 245   | 250 | 255 |
| Gln Leu Ser Glu Ser Lys Arg Glu Leu Thr Glu Leu Arg Ser Ala Leu |     |     |
| 260   | 265 | 270 |
| Arg Val Leu Gln Lys Glu Lys Glu Gln Leu Gln Glu Lys Gln Glu     |     |     |
| 275   | 280 | 285 |
| Leu Leu Glu Tyr Met Arg Lys Leu Glu Ala Arg Leu Glu Lys Val Ala |     |     |
| 290   | 295 | 300 |
| Asp Glu Lys Trp Asn Glu Asp Ala Thr Thr Glu Asp Glu Glu Ala Ala |     |     |
| 305   | 310 | 315 |
| Val Gly Leu Ser Cys Pro Ala Ala Leu Thr Asp Ser Glu Asp Glu Ser |     |     |
| 325   | 330 | 335 |
| Pro Glu Asp Met Arg Leu Pro Pro Tyr Gly Leu Cys Glu Arg Gly Asp |     |     |
| 340   | 345 | 350 |
| Pro Gly Ser Ser Pro Ala Gly Pro Arg Glu Ala Ser Pro Leu Val Val |     |     |
| 355   | 360 | 365 |
| Ile Ser Gln Pro Ala Pro Ile Ser Pro His Leu Ser Gly Pro Ala Glu |     |     |
| 370   | 375 | 380 |
| Asp Ser Ser Ser Asp Ser Glu Ala Glu Asp Glu Lys Ser Val Leu Met |     |     |
| 385   | 390 | 395 |
| Ala Ala Val Gln Ser Gly Gly Glu Glu Ala Asn Leu Leu Leu Pro Glu |     |     |
| 405   | 410 | 415 |
| Leu Gly Ser Ala Phe Tyr Asp Met Ala Ser Gly Phe Thr Val Gly Thr |     |     |
| 420   | 425 | 430 |
| Leu Ser Glu Thr Ser Thr Gly Gly Pro Ala Thr Pro Thr Trp Lys Glu |     |     |
| 435   | 440 | 445 |
| Cys Pro Ile Cys Lys Glu Arg Phe Pro Ala Glu Ser Asp Lys Asp Ala |     |     |
| 450   | 455 | 460 |
| Leu Glu Asp His Met Asp Gly His Phe Phe Phe Ser Thr Gln Asp Pro |     |     |

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Phe Thr Phe Glu

470

475

480

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<211> 523  
<212> DNA  
<213> Homo sapiens

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Lys Val Glu Val Ala Pro Gly Thr Ser Val Leu Ser Ser Ser Ala Ser  
35 40 45  
Ser Ser Cys Phe Cys Cys Cys Cys Cys Cys Cys Cys Cys Cys Cys Cys  
50 55 60  
Cys Cys Trp Met Arg Leu Arg Ser Glu Arg Leu Ser Ser Ala Leu Ala  
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&lt;400&gt; 3987

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&lt;210&gt; 3988

&lt;211&gt; 1817

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3988

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Gly | Ser | Ile | Thr | His | Gln | Ile | Ser | Arg | Pro | Asn | Pro | Pro | Asn | Phe |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gly | Pro | Gly | Phe | Val | Asn | Asp | Ser | Gln | Arg | Lys | Gln | Tyr | Glu | Glu | Trp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Gln | Glu | Thr | Gln | Gln | Leu | Leu | Gln | Met | Gln | Gln | Lys | Tyr | Leu | Glu |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |
| Glu | Gln | Ile | Gly | Ala | His | Arg | Lys | Ser | Lys | Lys | Ala | Leu | Ser | Ala | Lys |



|                     |                                 |                     |     |    |     |
|---------------------|---------------------------------|---------------------|-----|----|-----|
| 50                  |                                 | 55                  |     | 60 |     |
| Gln Arg Thr Ala Lys | Lys Ala Gly Arg Glu Phe         | Pro Glu Glu Asp Ala |     |    |     |
| 65                  | 70                              | 75                  | 80  |    |     |
| Glu Gln Leu Lys His | Val Thr Glu Gln Gln Ser Met Val | Gln Lys Gln         |     |    |     |
|                     | 85                              | 90                  | 95  |    |     |
| Leu Glu Gln Ile Arg | Lys Gln Gln Lys Glu His Ala Glu | Leu Ile Glu         |     |    |     |
|                     | 100                             | 105                 | 110 |    |     |
| Asp Tyr Arg Ile Lys | Gln Gln Gln Gln Cys Ala Met Ala | Pro Pro Thr         |     |    |     |
|                     | 115                             | 120                 | 125 |    |     |
| Met Met Pro Ser Val | Gln Pro Gln Pro Pro Leu Ile     | Pro Gly Ala Thr     |     |    |     |
|                     | 130                             | 135                 | 140 |    |     |
| Pro Pro Thr Met Ser | Gln Pro Thr Phe Pro Met Val     | Pro Gln Gln Leu     |     |    |     |
|                     | 145                             | 150                 | 155 |    | 160 |
| Gln His Gln Gln His | Thr Thr Val Ile Ser Gly His Thr | Ser Pro Val         |     |    |     |
|                     | 165                             | 170                 | 175 |    |     |
| Arg Met Pro Ser Leu | Pro Gly Trp Gln Pro Asn Ser Ala | Pro Ala His         |     |    |     |
|                     | 180                             | 185                 | 190 |    |     |
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| Glu Ile Ser Ser Ser | Arg Thr Ser Val Ser Gln Ile     | Pro Phe Tyr Ser     |     |    |     |
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|                     | 305                             | 310                 | 315 |    | 320 |
| Ser Pro Gln His Gln | Gln Gln Met Gly Gln Val Leu     | Gln Gln Gln Asn     |     |    |     |
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| Thr Asn Glu Arg Arg | Gln Val Gly Pro Pro Ser         | Phe Val Pro Asp Ser |     |    |     |
|                     | 355                             | 360                 | 365 |    |     |
| Pro Ser Ile Pro Val | Gly Ser Pro Asn Phe Ser         | Ser Val Lys Gln Gly |     |    |     |
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| His Gly Asn Leu Ser | Gly Thr Ser Phe Gln Gln Ser     | Pro Val Arg Pro     |     |    |     |
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|                     | 465                             | 470                 | 475 |    | 480 |
| Pro Pro Thr Pro Gly | Ile Ser Glu Thr Thr Ser         | Thr Pro Ala Val Ser |     |    |     |

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| Ile Lys Thr Glu Pro Gly Thr Leu Tyr Phe Ala Ser Pro Phe Gly Pro |      |      |
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| His Pro Thr Ala Ala Glu Asn Ile Ser Ser Val Val Ala Ala Phe Ser |      |      |
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| Asn Val Pro Phe Pro Pro Thr Ser Asn Gly Leu Ser Gly Tyr Lys Asp |      |      |
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| Arg | Arg | Pro | Tyr | Tyr | Phe | Arg | Gly | Arg | Asn | Arg | Gly | Phe | Tyr | Pro | Trp |
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| Ser | Pro | Lys | Arg | Arg | Ser | Pro | Ser | Pro | Arg | Ser | Arg | Ser | His | Ser | Arg |
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| Ser | Val | Val | Val | Arg | Arg | Arg | Ser | Pro | Arg | Pro | Ser | Pro | Val | Pro | Lys |
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3163

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Ser Gly Asn Asn Asn Asn Asn Ser Asn Asn Asp Phe Gln Lys Arg Asn
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Arg Glu Glu Glu Trp Asp Pro Glu Tyr Thr Pro Lys Ser Lys Lys Tyr
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Tyr Leu His Asp Asp Arg Glu Gly Glu Gly Ser Asp Lys Trp Val Ser
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Arg Gly Arg Gly Arg Gly Ala Phe Pro Arg Gly Arg Gly Arg Phe Met
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Phe Arg Lys Ser Ser Thr Ser Pro Lys Trp Ala His Asp Lys Phe Ser
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 Pro Phe Glu Pro Ala Pro Tyr Gln Gln Gly Met Tyr Tyr Thr Pro Pro

|   |     |     |
|---|-----|-----|
| 35  | 40  | 45  |
| Pro Gln Cys Val Ser Arg Phe Val Arg Pro Pro Pro Ser Ala Pro Glu |     |     |
| 50  | 55  | 60  |
| Pro Ala Pro Pro Tyr Leu Asp His Tyr Pro Pro Tyr Leu Gln Glu Arg |     |     |
| 65  | 70  | 75  |
| Val Val Asn Ser Gln Tyr Gly Thr Gln Pro Gln Gln Tyr Pro Pro Ile |     |     |
| 85  | 90  | 95  |
| Tyr Pro Ser His Tyr Asp Gly Arg Arg Val Tyr Pro Ala Pro Ser Tyr |     |     |
| 100   | 105 | 110 |
| Thr Arg Glu Glu Ile Phe Arg Glu Ser Pro Ile Pro Ile Glu Ile     |     |     |
| 115   | 120 | 125 |

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&lt;211&gt; 394

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3993

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&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3994

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| Thr Glu Gly Ala Asn Ile Asn Lys Pro Asp Cys Glu Gly Glu Thr Pro |    |
| 35  | 45 |
| Ile His Lys Ala Ala Arg Ser Gly Ser Leu Glu Cys Ile Ser Ala Leu |    |
| 50  | 60 |
| Val Ala Asn Gly Ala His Val Glu                                 |    |
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&lt;211&gt; 715

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3995

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&lt;211&gt; 235

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3996

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| Glu | Gly | Ala | Val | Gly | Gly | Ala | Ala | Ala | Glu | Thr | Gly | Arg | Arg | Asp | Arg |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |     |
| Ser | Ser | Ser | Val | Arg | Arg | Thr | Gln | Ala | Ile | Arg | Arg | Arg | His | Asn | Ala |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Gly | Ser | Asn | Pro | Thr | Pro | Pro | Ala | Ser | Val | Met | Gly | Ser | Pro | Pro | Ser |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Ser | Leu | Gln | Glu | Ala | Gln | Arg | Gly | Arg | Ala | Ala | Ser | His | Ser | Arg | Ala |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |
| Leu | Thr | Leu | Pro | Ser | Ala | Leu | His | Phe | Ala | Ser | Ser | Leu | Leu | Leu | Thr |
|     |     |     | 85  |     |     |     | 90  |     |     |     |     | 95  |     |     |     |
| Arg | Ala | Gly | Ala | Asn | Val | His | Glu | Ala | Cys | Thr | Phe | Asp | Asp | Thr | Ser |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Glu | Gly | Ala | Val | His | Tyr | Phe | Tyr | Asp | Glu | Ser | Gly | Val | Arg | Arg | Ser |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
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|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gln | Gly | Glu | Gln | Thr | Ala | Asn | Gly | Ala | Trp | Asp | Arg | His | Ser | His | Ser |
| 145 |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |     |
| Ser | Ser | Phe | His | Ser | Ala | Asp | Val | Pro | Glu | Ala | Thr | Gly | Gly | Leu | Asn |
|     |     |     | 165 |     |     |     | 170 |     |     |     |     |     |     | 175 |     |
| Leu | Leu | Gln | Pro | Arg | Pro | Val | Val | Leu | Gln | Gly | Met | Gln | Val | Arg | Arg |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 180 |     | 185 |     | 190 |     |     |     |     |     |     |     |     |     |     |
| Val | Pro | Leu | Glu | Ile | Pro | Glu | Phe | Asp | Leu | Leu | Asp | Gln | Asp | Ser | Leu |
|     | 195 |     | 200 |     | 205 |     |     |     |     |     |     |     |     |     |     |
| His | Glu | Ser | Gln | Glu | Gln | Thr | Leu | Met | Glu | Glu | Ala | Pro | Pro | Arg | Ala |
|     | 210 |     | 215 |     | 220 |     |     |     |     |     |     |     |     |     |     |
| Gln | His | Ser | Tyr | Lys | Tyr | Leu | Gly | Phe | Gly | Glu |     |     |     |     |     |
| 225 |     |     | 230 |     | 235 |     |     |     |     |     |     |     |     |     |     |

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&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3997

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&lt;210&gt; 3998

&lt;211&gt; 2220

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 3998

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Met Ile Arg Ile Ala Ala Leu Asn Ala Ser Ser Thr Ile Glu Asp Asp
 1           5           10           15
His Glu Gly Ser Phe Lys Ser His Lys Thr Gln Thr Lys Glu Ala Gln
 20           25           30
Glu Ala Glu Ala Phe Ala Leu Tyr His Lys Ala Leu Asp Leu Gln Lys
 35           40           45
His Asp Arg Phe Glu Glu Ser Ala Lys Ala Tyr His Glu Leu Leu Glu
 50           55           60
Ala Ser Leu Leu Arg Glu Ala Val Ser Ser Gly Asp Glu Lys Glu Gly
 65           70           75           80
Leu Lys His Pro Gly Leu Ile Leu Lys Tyr Ser Thr Tyr Lys Asn Leu
 85           90           95
Ala Gln Leu Ala Ala Gln Arg Glu Asp Leu Glu Thr Ala Met Glu Phe
100           105           110
Tyr Leu Glu Ala Val Met Leu Asp Ser Thr Asp Val Asn Leu Trp Tyr
115           120           125
Lys Ile Gly His Val Ala Leu Arg Leu Ile Arg Ile Pro Leu Ala Arg
130           135           140
His Ala Phe Glu Glu Gly Leu Arg Cys Asn Pro Asp His Trp Pro Cys
145           150           155           160
Leu Asp Asn Leu Ile Thr Val Leu Tyr Thr Leu Ser Asp Tyr Thr Thr
165           170           175
Cys Leu Tyr Phe Ile Cys Lys Ala Leu Glu Lys Asp Cys Arg Tyr Ser
180           185           190
Lys Gly Leu Val Leu Lys Glu Lys Ile Phe Glu Glu Gln Pro Cys Leu
195           200           205
Arg Lys Asp Ser Leu Arg Met Phe Leu Lys Cys Asp Met Ser Ile His
210           215           220
Asp Val Ser Val Ser Ala Ala Glu Thr Gln Ala Ile Val Asp Glu Ala
225           230           235           240
Leu Gly Leu Arg Lys Lys Arg Gln Ala Leu Ile Val Arg Glu Lys Glu
245           250           255
Pro Asp Leu Lys Leu Val Gln Pro Ile Pro Phe Phe Thr Trp Lys Cys
260           265           270
Leu Gly Glu Ser Leu Leu Ala Met Tyr Asn His Leu Thr Thr Cys Glu
275           280           285
Pro Pro Arg Pro Ser Leu Gly Lys Arg Ile Asp Leu Ser Asp Tyr Gln
290           295           300
Asp Pro Ser Gln Pro Leu Glu Ser Ser Met Val Val Thr Pro Val Asn
305           310           315           320
Val Ile Gln Pro Ser Thr Val Ser Thr Asn Pro Ala Val Ala Val Ala
325           330           335
Glu Pro Val Val Ser Tyr Thr Ser Val Ala Thr Thr Ser Phe Pro Leu
340           345           350
His Ser Pro Gly Leu Leu Glu Thr Gly Ala Pro Val Gly Asp Ile Ser
355           360           365
Gly Gly Asp Lys Ser Lys Lys Gly Val Lys Arg Lys Lys Ile Ser Glu
370           375           380
Glu Ser Gly Glu Thr Ala Lys Arg Arg Ser Ala Arg Val Arg Asn Thr
385           390           395           400
Lys Cys Lys Lys Glu Glu Lys Val Asp Phe Gln Glu Leu Leu Met Lys
405           410           415
Phe Leu Pro Ser Arg Leu Arg Lys Leu Asp Pro Glu Glu Glu Asp Asp

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |  |
| Ser | Phe | Asn | Asn | Tyr | Glu | Val | Gln | Ser | Glu | Ala | Lys | Leu | Glu | Ser | Phe |  |  |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |  |  |
| Pro | Ser | Ile | Gly | Pro | Gln | Arg | Leu | Ser | Phe | Asp | Ser | Ala | Thr | Phe | Met |  |  |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |  |  |
| Glu | Ser | Glu | Lys | Gln | Asp | Val | His | Glu | Phe | Leu | Leu | Glu | Asn | Leu | Thr |  |  |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |  |
| Asn | Gly | Gly | Ile | Leu | Glu | Leu | Met | Met | Arg | Tyr | Leu | Lys | Ala | Met | Gly |  |  |
|     |     |     | 485 |     |     |     |     |     | 490 |     |     |     |     | 495 |     |  |  |
| His | Lys | Phe | Leu | Val | Arg | Trp | Pro | Pro | Gly | Leu | Ala | Glu | Val | Val | Leu |  |  |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |  |
| Ser | Val | Tyr | His | Ser | Trp | Arg | Arg | His | Ser | Thr | Ser | Leu | Pro | Asn | Pro |  |  |
|     | 515 |     |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |  |  |
| Leu | Leu | Arg | Asp | Cys | Ser | Asn | Lys | His | Ile | Lys | Asp | Met | Met | Leu | Met |  |  |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |  |  |
| Ser | Leu | Ser | Cys | Met | Glu | Leu | Gln | Leu | Asp | Gln | Trp | Leu | Leu | Thr | Lys |  |  |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |  |  |
| Gly | Arg | Ser | Ser | Ala | Val | Ser | Pro | Arg | Asn | Cys | Pro | Ala | Gly | Met | Val |  |  |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |  |  |
| Asn | Gly | Arg | Phe | Gly | Pro | Asp | Phe | Pro | Gly | Thr | His | Cys | Leu | Gly | Asp |  |  |
|     |     |     | 580 |     |     |     | 585 |     |     |     |     |     | 590 |     |     |  |  |
| Leu | Leu | Gln | Leu | Ser | Phe | Ala | Ser | Ser | Gln | Arg | Asp | Leu | Phe | Glu | Asp |  |  |
|     | 595 |     |     |     |     | 600 |     |     |     |     |     | 605 |     |     |     |  |  |
| Gly | Trp | Leu | Glu | Phe | Val | Val | Arg | Val | Tyr | Trp | Leu | Lys | Ala | Arg | Phe |  |  |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |  |  |
| Leu | Ala | Leu | Gln | Gly | Asp | Met | Glu | Gln | Ala | Leu | Glu | Asn | Tyr | Asp | Ile |  |  |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |  |  |
| Cys | Thr | Glu | Met | Leu | Gln | Ser | Ser | Thr | Ala | Ile | Gln | Val | Glu | Ala | Gly |  |  |
|     |     |     | 645 |     |     |     |     |     | 650 |     |     |     |     | 655 |     |  |  |
| Ala | Glu | Arg | Arg | Asp | Ile | Val | Ile | Arg | Leu | Pro | Asn | Leu | His | Asn | Asp |  |  |
|     |     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |  |  |
| Ser | Val | Val | Ser | Leu | Glu | Glu | Ile | Asp | Lys | Asn | Leu | Lys | Ser | Leu | Glu |  |  |
|     | 675 |     |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |  |  |
| Arg | Cys | Gln | Ser | Leu | Glu | Glu | Ile | Gln | Arg | Leu | Tyr | Glu | Ala | Gly | Asp |  |  |
|     | 690 |     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     |  |  |
| Tyr | Lys | Ala | Val | Val | His | Leu | Leu | Arg | Pro | Thr | Leu | Cys | Thr | Ser | Gly |  |  |
| 705 |     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |  |  |
| Phe | Asp | Arg | Ala | Lys | His | Leu | Glu | Phe | Met | Thr | Ser | Ile | Pro | Glu | Arg |  |  |
|     |     |     | 725 |     |     |     |     |     | 730 |     |     |     |     | 735 |     |  |  |
| Pro | Ala | Gln | Leu | Leu | Leu | Leu | Gln | Asp | Ser | Leu | Leu | Arg | Leu | Lys | Asp |  |  |
|     |     | 740 |     |     |     |     | 745 |     |     |     |     |     | 750 |     |     |  |  |
| Tyr | Arg | Gln | Cys | Phe | Glu | Cys | Ser | Asp | Val | Ala | Leu | Asn | Glu | Ala | Val |  |  |
|     | 755 |     |     |     |     |     | 760 |     |     |     |     | 765 |     |     |     |  |  |
| Gln | Gln | Met | Val | Asn | Ser | Gly | Glu | Ala | Ala | Ala | Lys | Glu | Glu | Trp | Val |  |  |
|     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |     |     |     |     |  |  |
| Ala | Thr | Val | Thr | Gln | Leu | Met | Gly | Ile | Glu | Gln | Ala | Leu | Ser | Ala |     |  |  |
| 785 |     |     |     |     | 790 |     |     |     | 795 |     |     |     |     |     | 800 |  |  |
| Asp | Ser | Ser | Gly | Ser | Ile | Leu | Lys | Val | Ser | Ser | Ser | Thr | Thr | Gly | Leu |  |  |
|     |     |     | 805 |     |     |     |     | 810 |     |     |     |     | 815 |     |     |  |  |
| Val | Arg | Leu | Thr | Asn | Asn | Leu | Ile | Gln | Val | Ile | Asp | Cys | Ser | Met | Ala |  |  |
|     |     | 820 |     |     |     |     | 825 |     |     |     |     | 830 |     |     |     |  |  |
| Val | Gln | Glu | Glu | Ala | Lys | Glu | Pro | His | Val | Ser | Ser | Val | Leu | Pro | Trp |  |  |
|     | 835 |     |     |     |     |     | 840 |     |     |     |     | 845 |     |     |     |  |  |
| Ile | Ile | Leu | His | Arg | Ile | Ile | Trp | Gln | Glu | Glu | Asp | Thr | Phe | His | Ser |  |  |

|                             |   |     |      |     |      |
|-----------------------------|---|-----|------|-----|------|
| 850                         |   | 855 |      | 860 |      |
| Leu Cys His Gln Gln Gln     | Leu Gln Asn Pro Ala Glu Glu Gly Met Ser |     |      |     |      |
| 865                         |   | 870 |      | 875 | 880  |
| Glu Thr Pro Met Leu Pro     | Ser Ser Leu Met Leu Leu Asn Thr Ala His |     |      |     |      |
|                             | 885                                     |     | 890  |     | 895  |
| Glu Tyr Leu Gly Arg Arg     | Ser Trp Cys Cys Asn Ser Asp Gly Ala Leu |     |      |     |      |
|                             | 900                                     |     | 905  |     | 910  |
| Leu Arg Phe Tyr Val Arg Val | Leu Gln Lys Glu Leu Ala Ala Ser Thr     |     |      |     |      |
|                             | 915                                     |     | 920  |     | 925  |
| Ser Glu Asp Thr His Pro Tyr | Lys Glu Glu Leu Glu Thr Ala Leu Glu     |     |      |     |      |
|                             | 930                                     |     | 935  |     | 940  |
| Gln Cys Phe Tyr Cys Leu Tyr | Ser Phe Pro Ser Lys Lys Ser Lys Ala     |     |      |     |      |
|                             | 945                                     |     | 950  |     | 955  |
| Arg Tyr Leu Glu Glu His Ser | Ala Gln Gln Val Asp Leu Ile Trp Glu     |     |      |     |      |
|                             | 965                                     |     | 970  |     | 975  |
| Asp Ala Leu Phe Met Phe Glu | Tyr Phe Lys Pro Lys Thr Leu Pro Glu     |     |      |     |      |
|                             | 980                                     |     | 985  |     | 990  |
| Phe Asp Ser Tyr Lys Thr Ser | Thr Val Ser Ala Asp Leu Ala Asn Leu     |     |      |     |      |
|                             | 995                                     |     | 1000 |     | 1005 |
| Leu Lys Arg Ile Ala Thr Ile | Val Pro Arg Thr Glu Arg Pro Ala Leu     |     |      |     |      |
|                             | 1010                                    |     | 1015 |     | 1020 |
| Ser Leu Asp Lys Val Ser Ala | Tyr Ile Glu Gly Thr Ser Thr Glu Val     |     |      |     |      |
|                             | 1025                                    |     | 1030 |     | 1035 |
| Pro Cys Leu Pro Glu Gly Ala | Asp Pro Ser Pro Pro Val Val Asn Glu     |     |      |     |      |
|                             | 1045                                    |     | 1050 |     | 1055 |
| Leu Tyr Tyr Leu Leu Ala Asp | Tyr His Phe Lys Asn Lys Glu Gln Ser     |     |      |     |      |
|                             | 1060                                    |     | 1065 |     | 1070 |
| Lys Ala Ile Lys Phe Tyr Met | His Asp Ile Cys Ile Cys Pro Asn Arg     |     |      |     |      |
|                             | 1075                                    |     | 1080 |     | 1085 |
| Phe Asp Ser Trp Ala Gly Met | Ala Leu Ala Arg Ala Ser Arg Ile Gln     |     |      |     |      |
|                             | 1090                                    |     | 1095 |     | 1100 |
| Asp Lys Leu Asn Ser Asn Glu | Leu Lys Ser Asp Gly Pro Ile Trp Lys     |     |      |     |      |
|                             | 1105                                    |     | 1110 |     | 1115 |
| His Ala Thr Pro Val Leu Asn | Cys Phe Arg Arg Ala Leu Glu Ile Asp     |     |      |     |      |
|                             | 1125                                    |     | 1130 |     | 1135 |
| Ser Ser Asn Leu Ser Leu Trp | Ile Glu Tyr Gly Thr Met Ser Tyr Ala     |     |      |     |      |
|                             | 1140                                    |     | 1145 |     | 1150 |
| Leu His Ser Phe Ala Ser Arg | Gln Leu Lys Gln Trp Arg Gly Glu Leu     |     |      |     |      |
|                             | 1155                                    |     | 1160 |     | 1165 |
| Pro Pro Glu Leu Val Gln Gln | Met Glu Gly Arg Arg Asp Ser Met Leu     |     |      |     |      |
|                             | 1170                                    |     | 1175 |     | 1180 |
| Glu Thr Ala Lys His Cys Phe | Thr Ser Ala Ala Arg Cys Glu Gly Asp     |     |      |     |      |
|                             | 1185                                    |     | 1190 |     | 1195 |
| Gly Asp Glu Glu Glu Trp Leu | Ile His Tyr Met Leu Gly Lys Val Ala     |     |      |     |      |
|                             | 1205                                    |     | 1210 |     | 1215 |
| Glu Lys Gln Gln Gln Pro Pro | Thr Val Tyr Leu Leu His Tyr Arg Gln     |     |      |     |      |
|                             | 1220                                    |     | 1225 |     | 1230 |
| Ala Gly His Tyr Leu His Glu | Glu Ala Ala Arg Tyr Pro Lys Lys Ile     |     |      |     |      |
|                             | 1235                                    |     | 1240 |     | 1245 |
| His Tyr His Asn Pro Pro Glu | Leu Ala Met Glu Ala Leu Glu Val Tyr     |     |      |     |      |
|                             | 1250                                    |     | 1255 |     | 1260 |
| Phe Arg Leu His Ala Ser Ile | Leu Lys Leu Leu Gly Lys Pro Asp Ser     |     |      |     |      |
|                             | 1265                                    |     | 1270 |     | 1275 |
| Gly Val Gly Ala Glu Val Leu | Val Asn Phe Met Lys Glu Ala Ala Glu     |     |      |     |      |

**3175**

|   |      |      |
|---|------|------|
| 1715  | 1720 | 1725 |
| Asn His Arg Pro Val Ala Met Asp Ala Gly Asp Ser Ala Asp Gln Ser |      |      |
| 1730  | 1735 | 1740 |
| Gly Glu Arg Lys Asp Lys Glu Ser Pro Arg Ala Gly Pro Thr Glu Pro |      |      |
| 1745  | 1750 | 1755 |
| Met Asp Thr Ser Glu Ala Thr Val Cys His Ser Asp Leu Glu Arg Thr |      |      |
| 1765  | 1770 | 1775 |
| Pro Pro Leu Leu Pro Gly Arg Pro Ala Arg Asp Arg Gly Pro Glu Ser |      |      |
| 1780  | 1785 | 1790 |
| Arg Pro Thr Glu Leu Ser Leu Glu Glu Leu Ser Ile Ser Ala Arg Gln |      |      |
| 1795  | 1800 | 1805 |
| Gln Pro Thr Pro Leu Thr Pro Ala Gln Pro Ala Pro Ala Pro Ala Pro |      |      |
| 1810  | 1815 | 1820 |
| Ala Thr Thr Thr Gly Thr Arg Ala Gly Gly His Pro Glu Glu Pro Leu |      |      |
| 1825  | 1830 | 1835 |
| Ser Arg Leu Ser Arg Lys Arg Lys Leu Leu Glu Asp Thr Glu Ser Gly |      |      |
| 1845  | 1850 | 1855 |
| Lys Thr Leu Leu Leu Asp Ala Tyr Arg Val Trp Gln Gln Gly Gln Lys |      |      |
| 1860  | 1865 | 1870 |
| Gly Val Ala Tyr Asp Leu Gly Arg Val Glu Arg Ile Met Ser Glu Thr |      |      |
| 1875  | 1880 | 1885 |
| Tyr Met Leu Ile Lys Gln Val Asp Glu Glu Ala Ala Leu Glu Gln Ala |      |      |
| 1890  | 1895 | 1900 |
| Val Lys Phe Cys Gln Val His Leu Gly Ala Ala Ala Gln Arg Gln Ala |      |      |
| 1905  | 1910 | 1915 |
| Ser Gly Asp Thr Pro Thr Thr Pro Lys His Pro Lys Asp Ser Arg Glu |      |      |
| 1925  | 1930 | 1935 |
| Asn Phe Phe Pro Val Thr Val Val Pro Thr Ala Pro Asp Pro Val Pro |      |      |
| 1940  | 1945 | 1950 |
| Ala Asp Ser Val Gln Arg Pro Ser Asp Ala His Thr Lys Pro Arg Pro |      |      |
| 1955  | 1960 | 1965 |
| Ala Leu Ala Ala Ala Thr Thr Ile Ile Thr Cys Pro Pro Ser Ala Ser |      |      |
| 1970  | 1975 | 1980 |
| Ala Ser Thr Leu Asp Gln Ser Lys Asp Pro Gly Pro Pro Arg Pro His |      |      |
| 1985  | 1990 | 1995 |
| Arg Pro Glu Ala Thr Pro Ser Met Ala Ser Leu Gly Pro Glu Gly Glu |      |      |
| 2005  | 2010 | 2015 |
| Glu Leu Ala Arg Val Ala Glu Gly Thr Ser Phe Pro Pro Gln Glu Pro |      |      |
| 2020  | 2025 | 2030 |
| Arg His Ser Pro Gln Val Lys Met Ala Pro Thr Ser Ser Pro Ala Glu |      |      |
| 2035  | 2040 | 2045 |
| Pro His Cys Trp Pro Ala Glu Ala Ala Leu Gly Thr Gly Ala Glu Pro |      |      |
| 2050  | 2055 | 2060 |
| Thr Cys Ser Gln Glu Gly Lys Leu Arg Pro Glu Pro Arg Arg Asp Gly |      |      |
| 2065  | 2070 | 2075 |
| Glu Ala Gln Glu Ala Ser Glu Thr Gln Pro Leu Ser Ser Pro Pro     |      |      |
| 2085  | 2090 | 2095 |
| Thr Ala Ala Ser Ser Lys Ala Pro Ser Ser Gly Ser Ala Gln Pro Pro |      |      |
| 2100  | 2105 | 2110 |
| Glu Gly His Pro Gly Lys Pro Glu Pro Ser Arg Ala Lys Ser Arg Pro |      |      |
| 2115  | 2120 | 2125 |
| Leu Pro Asn Met Pro Lys Leu Val Ile Pro Ser Ala Ala Thr Lys Phe |      |      |
| 2130  | 2135 | 2140 |
| Pro Pro Glu Ile Thr Val Thr Pro Pro Thr Pro Thr Leu Leu Ser Pro |      |      |

|                 |                 |                 |                 |
|-----------------|-----------------|-----------------|-----------------|
| 2145            | 2150            | 2155            | 2160            |
| Lys Gly Ser Ile | Ser Glu Glu Thr | Lys Gln Lys Leu | Lys Ser Ala Ile |
|                 | 2165            | 2170            | 2175            |
| Leu Ser Ala Gln | Ser Ala Ala Asn | Val Arg Lys Glu | Ser Leu Cys Gln |
|                 | 2180            | 2185            | 2190            |
| Pro Ala Leu Glu | Val Leu Glu Thr | Ser Ser Gln Glu | Ser Ser Leu Glu |
|                 | 2195            | 2200            | 2205            |
| Ser Glu Thr Asp | Glu Asp Asp Asp | Tyr Met Asp Ile |                 |
| 2210            | 2215            | 2220            |                 |

&lt;210&gt; 3999

&lt;211&gt; 2546

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3999

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1140

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2520  
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2546

&lt;210&gt; 4000

&lt;211&gt; 606

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens



&lt;400&gt; 4000

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Met Gly Leu Pro Val Gly Thr Ala Ala Ile Ala Pro Ile Ile Ala Ala
 1           5           10           15
Val Lys Asp Gly Lys Ser Ile Thr His Glu Gly Arg Glu Ile Leu Ala
 20           25           30
Glu Glu Leu Cys Thr Pro Pro Asp Pro Gly Ala Ala Phe Val Val Val
 35           40           45
Glu Cys Pro Asp Glu Ser Phe Ile Gln Pro Ile Cys Glu Asn Ala Thr
 50           55           60
Phe Gln Arg Tyr Gln Gly Lys Ala Asp Ala Pro Val Ala Leu Val Val
 65           70           75           80
His Met Ala Pro Ala Ser Val Leu Val Asp Ser Arg Tyr Gln Gln Trp
 85           90           95
Met Glu Arg Phe Gly Pro Asp Thr Gln His Leu Val Leu Asn Glu Asn
100          105          110
Cys Ala Ser Val His Asn Leu Arg Ser His Lys Ile Gln Thr Gln Leu
115          120          125
Asn Leu Ile His Pro Asp Ile Phe Pro Leu Leu Thr Ser Phe Arg Cys
130          135          140
Lys Lys Glu Gly Pro Thr Leu Ser Val Pro Met Val Gln Gly Glu Cys
145          150          155          160
Leu Leu Lys Tyr Gln Leu Arg Pro Arg Arg Glu Trp Gln Arg Asp Ala
165          170          175
Ile Ile Thr Cys Asn Pro Glu Glu Phe Ile Val Glu Ala Leu Gln Leu
180          185          190
Pro Asn Phe Gln Gln Ser Val Gln Glu Tyr Arg Arg Ser Ala Gln Asp
195          200          205
Gly Pro Ala Pro Ala Glu Lys Arg Ser Gln Tyr Pro Glu Ile Ile Phe
210          215          220
Leu Gly Thr Gly Ser Ala Ile Pro Met Lys Ile Arg Asn Val Ser Ala
225          230          235          240
Thr Leu Val Asn Ile Ser Pro Asp Thr Ser Leu Leu Leu Asp Cys Gly
245          250          255
Glu Gly Thr Phe Gly Gln Leu Cys Arg His Tyr Gly Asp Gln Val Asp
260          265          270
Arg Val Leu Gly Thr Leu Ala Ala Val Phe Val Ser His Leu His Ala
275          280          285
Asp His His Thr Gly Leu Pro Ser Ile Leu Leu Gln Arg Glu Arg Ala
290          295          300
Leu Ala Ser Leu Gly Lys Pro Leu His Pro Leu Leu Val Val Ala Pro
305          310          315          320
Asn Gln Leu Lys Ala Trp Leu Gln Gln Tyr His Asn Gln Cys Gln Glu
325          330          335
Val Leu His His Ile Ser Met Ile Pro Ala Lys Cys Leu Gln Glu Gly
340          345          350
Ala Glu Ile Ser Ser Pro Ala Val Glu Arg Leu Ile Ser Ser Leu Leu
355          360          365
Arg Thr Cys Asp Leu Glu Glu Phe Gln Thr Cys Leu Val Arg His Cys
370          375          380
Lys His Ala Phe Gly Cys Ala Leu Val His Thr Ser Gly Trp Lys Val
385          390          395          400
Val Tyr Ser Gly Asp Thr Met Pro Cys Glu Ala Leu Val Arg Met Gly
405          410          415
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<211> 1251
<212> DNA
<213> Homo sapiens
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| cagagctctc | cagagttcaa  | gggctccctg | gcctccctct | cagacagctt | gggggtgtct  |  |
| 120        |             |            |            |            |             |  |
| gtcatggcca | ccgaccagga  | ctcctactcc | accagcagca | cggaggagga | gctggagcag  |  |
| 180        |             |            |            |            |             |  |
| ttcagcagcc | ccagcgtgaa  | gaagaagccc | tccatgatcc | tgggcaaggc | tcggcaccgg  |  |
| 240        |             |            |            |            |             |  |
| ctgagctttg | ccagtttcag  | cagcatgttc | cacgctttcc | tctccaacaa | ccgcaagctg  |  |
| 300        |             |            |            |            |             |  |
| tacaagaagg | tgggtggagct | ggcgcaggac | aagggctcgt | actttggcag | cctgggtgcag |  |
| 360        |             |            |            |            |             |  |
| gactacaagg | tgtacagcct  | ggagatgatg | gcgcgccaga | cctccagcac | ggagatgctg  |  |
| 420        |             |            |            |            |             |  |
| caggagattc | gcaccatgat  | gaccagctc  | aagagctacc | tgctgcagag | caccgagctc  |  |
| 480        |             |            |            |            |             |  |
| aaggccctgg | tggaccccg   | cctgcactcc | gaggaggagc | tcgaagcaat | tgtagagtct  |  |
| 540        |             |            |            |            |             |  |
| gccttgtaca | aatgtgtcct  | gaagcccctg | aaggaagcca | tcaactcatg | cctgcatcag  |  |
| 600        |             |            |            |            |             |  |
| atccacagca | aggatggttc  | gctgcagcag | ctcaaggaga | accagttagt | gatcctggcc  |  |
| 660        |             |            |            |            |             |  |
| accaccacca | ctgacctagg  | tgtgaccacc | agcgtgccgg | aggtgcccat | gatggagaag  |  |
| 720        |             |            |            |            |             |  |

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&lt;210&gt; 4002

&lt;211&gt; 417

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4002

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Ser | Pro | Ala | Ser | Gln | Ala | Gly | Thr | Gln | His | Pro | Pro | Ala | Gln | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Ala | His | Ser | Gln | Ser | Ser | Pro | Glu | Phe | Lys | Gly | Ser | Leu | Ala | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Ser | Asp | Ser | Leu | Gly | Val | Ser | Val | Met | Ala | Thr | Asp | Gln | Asp | Ser |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Tyr | Ser | Thr | Ser | Ser | Thr | Glu | Glu | Leu | Glu | Gln | Phe | Ser | Ser | Pro |     |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ser | Val | Lys | Lys | Lys | Pro | Ser | Met | Ile | Leu | Gly | Lys | Ala | Arg | His | Arg |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Leu | Ser | Phe | Ala | Ser | Phe | Ser | Ser | Met | Phe | His | Ala | Phe | Leu | Ser | Asn |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Asn | Arg | Lys | Leu | Tyr | Lys | Lys | Val | Val | Glu | Leu | Ala | Gln | Asp | Lys | Gly |
|     |     |     | 100 |     |     |     |     |     | 105 |     |     |     | 110 |     |     |
| Ser | Tyr | Phe | Gly | Ser | Leu | Val | Gln | Asp | Tyr | Lys | Val | Tyr | Ser | Leu | Glu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Met | Met | Ala | Arg | Gln | Thr | Ser | Ser | Thr | Glu | Met | Leu | Gln | Glu | Ile | Arg |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Thr | Met | Met | Thr | Gln | Leu | Lys | Ser | Tyr | Leu | Leu | Gln | Ser | Thr | Glu | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Lys | Ala | Leu | Val | Asp | Pro | Ala | Leu | His | Ser | Glu | Glu | Glu | Leu | Glu | Ala |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ile | Val | Glu | Ser | Ala | Leu | Tyr | Lys | Cys | Val | Leu | Lys | Pro | Leu | Lys | Glu |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ala | Ile | Asn | Ser | Cys | Leu | His | Gln | Ile | His | Ser | Lys | Asp | Gly | Ser | Leu |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Gln | Gln | Leu | Lys | Glu | Asn | Gln | Leu | Val | Ile | Leu | Ala | Thr | Thr | Thr | Thr |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asp | Leu | Gly | Val | Thr | Thr | Ser | Val | Pro | Glu | Val | Pro | Met | Met | Glu | Lys |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 225 |     | 230 |     | 235 |     | 240 |     |     |     |     |     |     |     |     |     |
| Ile | Leu | Gln | Lys | Phe | Thr | Ser | Met | His | Lys | Ala | Tyr | Ser | Pro | Glu | Lys |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Lys | Ile | Ser | Ile | Leu | Leu | Lys | Thr | Cys | Lys | Leu | Ile | Tyr | Asp | Ser | Met |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ala | Leu | Gly | Asn | Pro | Gly | Lys | Pro | Tyr | Gly | Ala | Asp | Asp | Phe | Leu | Pro |
|     |     | 275 |     |     |     |     | 280 |     |     |     | 285 |     |     |     |     |
| Val | Leu | Met | Tyr | Val | Leu | Ala | Arg | Ser | Asn | Leu | Thr | Glu | Met | Leu | Leu |
|     | 290 |     |     |     |     | 295 |     |     |     | 300 |     |     |     |     |     |
| Asn | Val | Glu | Tyr | Met | Met | Glu | Leu | Met | Asp | Pro | Ala | Leu | Gln | Leu | Gly |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     | 320 |     |
| Glu | Gly | Ser | Tyr | Tyr | Leu | Thr | Thr | Thr | Tyr | Gly | Ala | Leu | Glu | His | Ile |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Lys | Ser | Tyr | Asp | Lys | Ile | Thr | Val | Thr | Arg | Gln | Leu | Ser | Val | Glu | Val |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Gln | Asp | Ser | Ile | His | Arg | Trp | Glu | Arg | Arg | Arg | Thr | Leu | Asn | Lys | Ala |
|     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |     |
| Arg | Ala | Ser | Arg | Ser | Ser | Val | Gln | Asp | Phe | Ile | Cys | Val | Ser | Tyr | Leu |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Glu | Pro | Glu | Gln | Gln | Ala | Arg | Thr | Leu | Ala | Ser | Arg | Ala | Asp | Thr | Gln |
| 385 |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |     |
| Ala | Gln | Ala | Leu | Cys | Ala | Gln | Cys | Ala | Glu | Lys | Phe | Ala | Val | Glu | Arg |
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 <213> Homo sapiens

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 <212> PRT  
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      35           40           45
Ala Lys Pro Pro Val Ser Phe Phe Ser Leu Arg Ser Pro Val Leu Asp
      50           55           60
Leu Phe Gln Gly Gln Leu Asp Tyr Ala Glu Tyr Val Arg Arg Asp Ser
65           70           75           80
Glu Val Val Leu Leu Phe Phe Tyr Ala Pro Trp Cys Gly Gln Ser Ile
          85           90           95
Ala Ala Arg Ala Glu Ile Glu Gln Ala Ala Ser Arg Leu Ser Asp Gln
      100          105          110
Val Leu Phe Val Ala Ile Asn Cys Trp Trp Asn Gln Gly Lys Cys Arg
      115          120          125
Lys Gln Lys His Phe Phe Tyr Phe Pro Val Ile Tyr Leu Tyr His Arg
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<400> 4005

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420
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480
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Met Met Lys Ala Ala Ile Ser Glu Thr Glu Asp Met Pro Met Phe Glu  
35 40 45  
Pro Lys Met Thr Arg Ser Lys Leu Lys Glu Val Val Glu Lys Gly Met  
50 55 60  
Val Ile Pro Thr Trp Asn Ile Ser Pro Ile Lys Lys Ala Asn Glu Ile  
65 70 75 80  
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85 90 95  
Asp Glu Glu Tyr Gln Pro Asp Asp Glu Glu Glu Asp Glu Thr Ala Glu  
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Glu Ser Leu Leu Glu Ser Asp Val Glu Ser Thr Ala Ser Ser Pro Arg  
115 120 125  
Gly Ala Lys Lys Ser Arg Leu Arg Gln Ser Ser Glu Met Thr Glu Thr  
130 135 140  
Asp Glu Glu Ser Gly Ile Leu Ser Glu Ala Glu Lys Val Thr Thr Pro  
145 150 155 160  
Ala Ile Arg His Ile Ser Ala Glu Val Val Pro Met Gly Pro Pro Pro  
165 170 175  
Pro Pro Lys Pro Lys Gln Thr Arg Asp Ser Thr Phe Met Glu Lys Leu  
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 <212> PRT  
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 35 40 45  
 Glu Lys Asp Thr Gly Asp Leu Lys Asp Ser Ser Leu Leu Lys Thr Lys  
 50 55 60  
 Arg Lys His Lys Lys Lys His Lys Glu Arg His Lys Met Gly Glu Glu  
 65 70 75 80  
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 85 90 95  
 Lys Glu Tyr Leu Ala Leu Gln Lys Ala Ser Met Ala Ser Leu Lys Lys  
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 Glu Cys Arg Thr Gln Glu Lys Val Asn Ala Thr Gly Pro Gln Phe Val  
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 Ser Gly Val Ile Val Lys Ile Ile Ser Thr Glu Pro Leu Pro Gly Arg  
 165 170 175  
 Lys Gln Val Arg Asp Thr Leu Ala Ala Ile Ser Glu Val Leu Tyr Val  
 180 185 190  
 Asp Leu Leu Glu Gly Asp Thr Glu Cys His Ala Arg Phe Lys Thr Pro  
 195 200 205  
 Glu Asp Ala Gln Ala Val Ile Asn Ala Tyr Thr Glu Ile Asn Lys Lys  
 210 215 220  
 His Cys Trp Lys Leu Glu Ile Leu Ser Gly Asp His Glu Gln Arg Tyr  
 225 230 235 240  
 Trp Gln Lys Ile Leu Val Asp Arg Gln Ala Lys Leu Asn Gln Pro Arg  
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 Glu Lys Lys Arg Gly Thr Glu Lys Leu Ile Thr Lys Ala Glu Lys Ile



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<212> DNA
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&lt;210&gt; 4012

&lt;211&gt; 419

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4012

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Gln | Asp | Val | Val | Pro | Thr | Val | Lys | Met | Ala | Gly | Ala | Ala | Thr | Gln |
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| Ala | Ser | Leu | Glu | Ser | Ala | Pro | Arg | Ile | Met | Arg | Leu | Val | Ala | Glu | Cys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Arg | Ser | Arg | Ala | Arg | Ala | Gly | Glu | Leu | Trp | Leu | Pro | His | Gly | Thr |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Ala | Thr | Pro | Val | Phe | Met | Pro | Val | Gly | Thr | Gln | Ala | Thr | Met | Lys |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Ile | Thr | Thr | Glu | Gln | Leu | Asp | Ala | Leu | Gly | Cys | Arg | Ile | Cys | Leu |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Gly | Asn | Thr | Tyr | His | Leu | Gly | Leu | Arg | Pro | Gly | Pro | Glu | Leu | Ile | Gln |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Lys | Ala | Asn | Gly | Leu | His | Gly | Phe | Met | Asn | Trp | Pro | His | Asn | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Thr | Leu | Cys | Gly | Gly | Val | Ser | Leu | Asp | Ser | Gly | Gly | Phe | Gln | Met | Val |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Leu | Val | Ser | Leu | Ser | Glu | Val | Thr | Glu | Glu | Gly | Val | Arg | Phe | Arg |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Pro | Tyr | Asp | Gly | Asn | Glu | Thr | Leu | Leu | Ser | Pro | Glu | Lys | Ser | Val |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Gln | Ile | Gln | Asn | Ala | Leu | Gly | Ser | Asp | Ile | Ile | Met | Gln | Leu | Asp | Asp |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Val | Val | Ser | Ser | Thr | Val | Thr | Gly | Pro | Arg | Val | Glu | Glu | Ala | Met | Tyr |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Arg | Ser | Ile | Arg | Trp | Leu | Asp | Arg | Cys | Ile | Ala | Ala | His | Gln | Arg | Pro |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Asp | Lys | Gln | Asn | Leu | Phe | Ala | Ile | Ile | Gln | Gly | Gly | Leu | Asp | Ala | Asp |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Leu | Arg | Ala | Thr | Cys | Leu | Glu | Glu | Met | Thr | Lys | Arg | Asp | Val | Pro | Gly |

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<211> 473

<212> PRT

<213> Homo sapiens

<400> 4014

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| Xaa | Ile | Pro | Met | Val | Glu | Tyr | Lys | Leu | Asp | Ser | Glu | Gly | Thr | Pro | Cys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Tyr | Lys | Thr | Pro | Phe | Arg | Arg | Asn | Thr | Thr | Trp | His | Arg | Val | Pro |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Pro | Ala | Leu | Gln | Pro | Leu | Ser | Arg | Ala | Ser | Pro | Ile | Pro | Gly | Thr |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Pro | Asp | Arg | Leu | Pro | Cys | Gln | Leu | Leu | Gln | Gln | Ala | Gln | Ala | Ala |     |
|     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |     |
| Ile | Pro | Arg | Ser | Thr | Ser | Phe | Asp | Arg | Lys | Leu | Pro | Asp | Gly | Thr | Arg |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Ser | Ser | Pro | Ser | Asn | Gln | Ser | Ser | Ser | Ser | Asp | Pro | Gly | Pro | Gly | Gly |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Ser | Gly | Pro | Trp | Arg | Pro | Gln | Val | Gly | Tyr | Asp | Gly | Cys | Gln | Ser | Pro |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     | 110 |     |     |     |
| Leu | Leu | Leu | Glu | His | Gln | Gly | Ser | Gly | Pro | Leu | Glu | Cys | Asp | Gly | Ala |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Arg | Glu | Arg | Glu | Asp | Thr | Met | Glu | Ala | Ser | Arg | His | Pro | Glu | Thr | Lys |
|     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |
| Trp | His | Gly | Pro | Pro | Ser | Lys | Val | Leu | Gly | Ser | Tyr | Lys | Glu | Arg | Ala |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |     |
| Leu | Gln | Lys | Asp | Gly | Ser | Cys | Lys | Asp | Ser | Pro | Asn | Lys | Leu | Ser | His |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ile | Gly | Asp | Lys | Ser | Cys | Ser | Ser | His | Ser | Ser | Ser | Asn | Thr | Leu | Ser |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ser | Asn | Thr | Ser | Ser | Asn | Ser | Asp | Asp | Lys | His | Phe | Gly | Ser | Gly | Asp |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Leu | Met | Asp | Pro | Glu | Leu | Leu | Gly | Leu | Thr | Tyr | Ile | Lys | Gly | Ala | Ser |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Thr | Asp | Ser | Gly | Ile | Asp | Thr | Ala | Pro | Cys | Met | Pro | Ala | Thr | Ile | Leu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gly | Pro | Val | His | Leu | Ala | Gly | Ser | Arg | Ser | Leu | Ile | His | Ser | Arg | Ala |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Glu | Gln | Trp | Ala | Asp | Ala | Ala | Asp | Val | Ser | Gly | Pro | Asp | Asp | Glu | Pro |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |     |
| Ala | Lys | Leu | Tyr | Ser | Val | His | Gly | Tyr | Ala | Ser | Thr | Ile | Ser | Ala | Gly |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Ser | Ala | Ala | Glu | Gly | Ser | Met | Gly | Asp | Leu | Ser | Glu | Ile | Ser | Ser | His |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Ser | Ser | Gly | Ser | His | His | Ser | Gly | Ser | Pro | Ser | Ala | His | Cys | Ser | Lys |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Ser | Ser | Gly | Ser | Leu | Asp | Ser | Ser | Lys | Val | Tyr | Ile | Val | Ser | His | Ser |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |
| Ser | Gly | Gln | Gln | Val | Pro | Gly | Ser | Met | Ser | Lys | Pro | Tyr | His | Arg | Gln |
|     |     | 340 |     |     |     |     | 345 |     |     |     |     |     | 350 |     |     |
| Gly | Ala | Val | Asn | Lys | Tyr | Val | Ile | Gly | Trp | Lys | Lys | Ser | Glu | Gly | Ser |
|     | 355 |     |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Pro | Pro | Pro | Glu | Glu | Pro | Glu | Val | Thr | Glu | Cys | Pro | Gly | Met | Tyr | Ser |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Glu | Leu | Asp | Val | Met | Ser | Thr | Ala | Thr | Gln | His | Gln | Thr | Val | Val | Gly |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Asp | Ala | Val | Ala | Glu | Thr | Gln | His | Val | Leu | Ser | Lys | Glu | Asp | Phe | Leu |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     | 415 |     |
| Lys | Leu | Met | Leu | Pro | Asp | Ser | Pro | Leu | Val | Glu | Glu | Gly | Arg | Arg | Lys |
|     |     | 420 |     |     |     |     | 425 |     |     |     |     |     | 430 |     |     |
| Phe | Ser | Phe | Tyr | Gly | Asn | Leu | Ser | Pro | Arg | Arg | Ser | Leu | Tyr | Arg | Thr |
|     | 435 |     |     |     |     | 440 |     |     |     |     |     | 445 |     |     |     |
| Leu | Ser | Asp | Glu | Ser | Ile | Cys | Ser | Asn | Arg | Arg | Gly | Ser | Ser | Phe | Gly |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Ser | Ser | Arg | Ser | Ser | Val | Leu | Asp | Gln |     |     |     |     |     |     |     |
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&lt;210&gt; 4015

&lt;211&gt; 823

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4015

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&lt;210&gt; 4016

&lt;211&gt; 95

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4016

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Phe | Glu | Lys | Gln | Lys | Tyr | Leu | Ser | Thr | Pro | Asp | Arg | Ile | Asp | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Glu | Ser | Leu | Gly | Leu | Ser | Gln | Leu | Gln | Val | Lys | Thr | Trp | Tyr | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asn | Arg | Arg | Met | Lys | Trp | Lys | Lys | Ile | Val | Leu | Gln | Gly | Gly | Gly | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Glu | Ser | Pro | Thr | Lys | Pro | Lys | Gly | Arg | Pro | Lys | Lys | Asn | Ser | Ile | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Thr | Ser | Glu | Gln | Leu | Thr | Glu | Gln | Glu | Arg | Ala | Lys | Asp | Ala | Glu | Lys |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Pro | Ala | Glu | Val | Pro | Gly | Glu | Pro | Ser | Asp | Arg | Ser | Arg | Glu | Asp |     |
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&lt;210&gt; 4017

&lt;211&gt; 1521

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4017

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&lt;211&gt; 480

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4018

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| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Ser | Tyr | Val | Leu | Pro | Arg | Lys | Val | Ile | Thr | Ala | Ala | Val | Ile | Gly | Ser |
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| Leu | Val | Cys | Gly | Leu | Leu | Leu | Val | Ile | Ala | Leu | Gly | Cys | Thr | Cys | Lys |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |
| Leu | Tyr | Ala | Ile | Arg | Thr | Gln | Glu | Tyr | Ser | Ile | Phe | Ala | Pro | Leu | Ser |
|     |     |     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |
| Arg | Met | Glu | Ala | Glu | Ile | Val | Gln | Gln | Gln | Ala | Pro | Pro | Ser | Tyr | Gly |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
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| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gln | Leu | Ile | Ala | Gln | Gly | Ala | Ile | Pro | Pro | Val | Glu | Asp | Phe | Pro | Thr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Glu | Asn | Pro | Asn | Asp | Asn | Ser | Val | Leu | Gly | Asn | Leu | Arg | Ser | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
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|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
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|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Gly | Gly | Thr | Gly | Pro | Ala | Arg | Glu | Gly | Gly | Ala | Val | Gly | Gly | Gln | Asp |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| Gly | Glu | Gln | Ala | Pro | Pro | Leu | Pro | Ile | Lys | Ala | Pro | Leu | Pro | Ser | Ala |
|     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
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| 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |
| Pro | Ser | Leu | Pro | Leu | Glu | Pro | Ser | Leu | Leu | Ser | Gly | Val | Val | Gln | Ala |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     |     | 240 |
| Leu | Arg | Gly | Arg | Leu | Leu | Pro | Ser | Leu | Gly | Pro | Pro | Gly | Pro | Thr | Arg |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Ser | Pro | Pro | Gly | Pro | His | Thr | Ala | Val | Leu | Ala | Leu | Glu | Asp | Glu | Asp |
|     |     | 260 |     |     |     | 265 |     |     |     |     |     | 270 |     |     |     |
| Asp | Val | Leu | Leu | Val | Pro | Leu | Ala | Glu | Pro | Gly | Val | Trp | Val | Ala | Glu |
|     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |
| Ala | Glu | Asp | Glu | Pro | Leu | Leu | Thr |     |     |     |     |     |     |     |     |
|     | 290 |     |     |     |     | 295 |     |     |     |     |     |     |     |     |     |

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&lt;213&gt; Homo sapiens

&lt;400&gt; 4021

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| Thr | Pro | Ala | Pro | Val | Gln | Met | Asn | Leu | Tyr | Ala | Thr | Trp | Glu | Val | Asp |
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| Arg | Ser | Ser | Ser | Ser | Cys | Val | Pro | Arg | Leu | Phe | Ser | Leu | Thr | Leu | Lys |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Lys | Leu | Val | Met | Leu | Lys | Glu | Met | Asp | Lys | Asp | Leu | Asn | Ser | Val | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ile | Ala | Val | Lys | Leu | Gln | Gly | Ser | Lys | Arg | Ile | Leu | Arg | Ser | Asn | Glu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ile | Val | Leu | Pro | Ala | Ser | Gly | Leu | Val | Glu | Thr | Glu | Leu | Gln | Leu | Thr |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Phe | Ser | Leu | Gln | Tyr | Pro | His | Phe | Leu | Lys | Arg | Asp | Ala | Asn | Lys | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gln | Ile | Met | Leu | Gln | Arg | Arg | Lys | Arg | Tyr | Lys | Asn | Arg | Thr | Ile | Leu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Gly | Tyr | Lys | Thr | Leu | Ala | Val | Gly | Leu | Ile | Asn | Met | Ala | Glu | Val | Met |
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| Ser | Pro | Asp | Ile | Asp | Asn | Tyr | Ser | Glu | Glu | Glu | Glu | Glu | Ser | Phe | Ser |
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|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
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| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
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<212> PRT

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<400> 4024

Xaa Arg Val Lys Gly Met Ala Phe Ser Pro Asp Ser Thr Lys Ile Ala

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |
| Ile | Gly | Gln | Thr | Asp | Asn | Ile | Ile | Tyr | Val | Tyr | Lys | Ile | Gly | Glu | Asp |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |
| Trp | Gly | Asp | Lys | Lys | Val | Ile | Cys | Asn | Lys | Phe | Ile | Gln | Thr | Ser | Ala |  |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |  |
| Val | Thr | Cys | Leu | Gln | Trp | Pro | Ala | Glu | Tyr | Ile | Ile | Val | Phe | Gly | Leu |  |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Ala | Glu | Gly | Lys | Val | Arg | Leu | Ala | Asn | Thr | Lys | Thr | Asn | Lys | Ser | Ser |  |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |  |
| Thr | Ile | Tyr | Gly | Thr | Glu | Ser | Tyr | Val | Val | Ser | Leu | Thr | Thr | Asn | Cys |  |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |  |
| Ser | Gly | Lys | Gly | Ile | Leu | Ser | Gly | His | Ala | Asp | Gly | Thr | Ile | Val | Arg |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |
| Tyr | Phe | Phe | Asp | Asp | Glu | Gly | Ser | Gly | Glu | Ser | Gln | Gly | Lys | Leu | Val |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |
| Asn | His | Pro | Cys | Pro | Pro | Tyr | Ala | Leu | Ala | Trp | Ala | Thr | Asn | Ser | Ile |  |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |
| Val | Ala | Ala | Gly | Cys | Asp | Arg | Lys | Ile | Val | Ala | Tyr | Gly | Lys | Glu | Gly |  |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |  |
| His | Met | Leu | Gln | Thr | Phe | Asp | Tyr | Ser | Arg | Asp | Pro | Gln | Glu | Arg | Glu |  |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |  |
| Phe | Thr | Thr | Ala | Val | Ser | Ser | Pro | Gly | Gly | Gln | Ser | Val | Val | Leu | Gly |  |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |  |
| Ser | Tyr | Asp | Arg | Leu | Arg | Val | Phe | Asn | Trp | Ile | Pro | Arg | Arg | Ser | Ile |  |  |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |  |
| Trp | Glu | Glu | Ala | Lys | Pro | Lys | Glu | Ile | Thr | Asn | Leu | Tyr | Thr | Ile | Thr |  |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |  |
| Ala | Leu | Ala | Trp | Lys | Arg | Asp | Gly | Ser | Arg | Leu | Cys | Val | Gly | Thr | Leu |  |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |  |
| Cys | Gly | Gly | Val | Glu | Gln | Phe | Asp | Cys | Cys | Leu | Arg | Arg | Ser | Ile | Tyr |  |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |  |
| Lys | Asn | Lys | Phe | Glu | Leu | Thr | Tyr | Val | Gly | Pro | Ser | Gln | Val | Ile | Val |  |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |  |
| Lys | Asn | Leu | Ser | Ser | Gly | Thr | Arg | Val | Val | Leu | Lys | Ser | His | Tyr | Gly |  |  |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |  |
| Tyr | Glu | Val | Glu | Glu | Val | Lys | Ile | Leu | Gly | Lys | Glu | Arg | Tyr | Leu | Val |  |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |  |
| Ala | His | Thr | Ser | Glu | Thr | Leu | Leu | Leu | Gly | Asp | Leu | Asn | Thr | Asn | Arg |  |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |  |
| Leu | Ser | Glu | Ile | Ala | Trp | Gln | Gly | Ser | Gly | Gly | Asn | Glu | Lys | Tyr | Phe |  |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |  |
| Phe | Glu | Asn | Glu | Asn | Val | Cys | Met | Ile | Phe | Asn | Ala | Gly | Glu | Leu | Thr |  |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |  |
| Leu | Val | Glu | Tyr | Gly | Asn | Asn | Asp | Thr | Leu | Gly | Ser | Val | Arg | Thr | Glu |  |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |  |
| Phe | Met | Asn | Pro | His | Leu | Ile | Ser | Val | Arg | Ile | Asn | Glu | Arg | Cys | Gln |  |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |  |
| Arg | Gly | Thr | Glu | Asp | Asn | Lys | Lys | Leu | Ala | Tyr | Leu | Ile | Asp | Ile | Lys |  |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |  |
| Thr | Ile | Ala | Ile | Val | Asp | Leu | Ile | Gly | Gly | Tyr | Asn | Ile | Gly | Thr | Val |  |  |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |  |  |
| Ser | His | Glu | Ser | Arg | Val | Asp | Trp | Leu | Glu | Leu | Asn | Glu | Thr | Gly | His |  |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |  |
| Lys | Leu | Leu | Phe | Arg | Asp | Arg | Lys | Leu | Arg | Leu | His | Leu | Tyr | Asp | Ile |  |  |

|                                     |                                     |     |
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| 435                                 | 440                                 | 445 |
| Glu Ser Cys Ser Lys Thr Met         | Ile Leu Asn Phe Cys Ser Tyr Met Gln |     |
| 450                                 | 455                                 | 460 |
| Trp Val Pro Gly Ser Asp Val         | Leu Val Ala Gln Asn Arg Asn Ser Leu |     |
| 465                                 | 470                                 | 475 |
| Cys Val Trp Tyr Asn Ile Glu Ala Pro | Glu Arg Val Thr Met Phe Thr         | 480 |
| 485                                 | 490                                 | 495 |
| Ile Arg Gly Asp Val Ile Gly Leu     | Glu Arg Gly Gly Gly Lys Thr Glu     |     |
| 500                                 | 505                                 | 510 |
| Val Met Val Met Glu Gly Val Thr     | Val Ala Tyr Thr Leu Asp Glu         |     |
| 515                                 | 520                                 | 525 |
| Gly Leu Ile Glu Phe Gly Thr Ala     | Ile Asp Asp Gly Asn Tyr Ile Arg     |     |
| 530                                 | 535                                 | 540 |
| Ala Thr Ala Phe Leu Glu Thr Leu     | Glu Met Thr Pro Glu Thr Glu Ala     |     |
| 545                                 | 550                                 | 555 |
| Met Trp Lys Thr Leu Ser Lys Leu     | Ala Leu Glu Ala Arg Gln Leu His     |     |
| 565                                 | 570                                 | 575 |
| Ile Ala Glu Arg Cys Phe Ser Ala     | Leu Gly Gln Val Ala Lys Ala Arg     |     |
| 580                                 | 585                                 | 590 |
| Phe Leu His Glu Thr Asn Glu Ile     | Ala Asp Gln Val Ser Arg Glu Tyr     |     |
| 595                                 | 600                                 | 605 |
| Gly Gly Glu Gly Thr Asp Phe Tyr     | Gln Val Arg Ala Arg Leu Ala Met     |     |
| 610                                 | 615                                 | 620 |
| Leu Glu Lys Asn Tyr Lys Leu Ala     | Glu Met Ile Phe Leu Glu Gln Asn     |     |
| 625                                 | 630                                 | 635 |
| Ala Val Glu Glu Ala Met Gly Met     | Tyr Gln Glu Leu His Arg Trp Asp     |     |
| 645                                 | 650                                 | 655 |
| Glu Cys Ile Ala Val Ala Glu Ala     | Lys Gly His Pro Ala Leu Glu Lys     |     |
| 660                                 | 665                                 | 670 |
| Leu Arg Arg Ser Tyr Tyr Gln Trp     | Leu Met Asp Thr Gln Gln Glu Glu     |     |
| 675                                 | 680                                 | 685 |
| Arg Ala Gly Glu Leu Gln Glu Ser     | Gln Gly Asp Gly Leu Ala Ala Ile     |     |
| 690                                 | 695                                 | 700 |
| Ser Leu Tyr Leu Lys Ala Gly Leu     | Pro Ala Lys Ala Ala Arg Leu Val     |     |
| 705                                 | 710                                 | 715 |
| Leu Thr Arg Glu Glu Leu Leu Ala     | Asn Thr Glu Leu Val Glu His Ile     |     |
| 725                                 | 730                                 | 735 |
| Thr Ala Ala Leu Ile Lys Gly Glu     | Leu Tyr Glu Arg Ala Gly Asp Leu     |     |
| 740                                 | 745                                 | 750 |
| Phe Glu Lys Ile His Asn Pro Gln     | Lys Ala Leu Glu Cys Tyr Arg Lys     |     |
| 755                                 | 760                                 | 765 |
| Gly Asn Ala Phe Met Lys Ala Val     | Glu Leu Ala Arg Leu Ala Phe Pro     |     |
| 770                                 | 775                                 | 780 |
| Val Glu Val Val Lys Leu Glu Glu     | Ala Trp Gly Asp His Leu Val Gln     |     |
| 785                                 | 790                                 | 795 |
| Gln Lys Gln Leu Asp Ala Ala Ile     | Asn His Tyr Ile Glu Ala Arg Cys     |     |
| 805                                 | 810                                 | 815 |
| Ser Ile Lys Ala Ile Glu Ala Ala     | Leu Gly Ala Arg Gln Trp Lys Lys     |     |
| 820                                 | 825                                 | 830 |
| Ala Ile Tyr Ile Leu Asp Leu Gln     | Asp Arg Asn Thr Ala Ser Lys Tyr     |     |
| 835                                 | 840                                 | 845 |
| Tyr Pro Leu Val Ala Gln His Tyr     | Ala Ser Leu Gln Glu Tyr Glu Ile     |     |
| 850                                 | 855                                 | 860 |
| Ala Glu Glu Leu Tyr Thr Lys Gly     | Asp Arg Thr Lys Asp Ala Ile Asp     |     |

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|---|------|------|------|------|-----|------|
| 865   |      | 870  |      | 875  |     | 880  |
| Met Tyr Thr Gln Ala Gly Arg Trp Glu Gln Ala His Lys Leu Ala Met |      |      |      |      |     |      |
|   | 885  |      |      | 890  |     | 895  |
| Lys Cys Met Arg Pro Glu Asp Val Ser Val Leu Tyr Ile Thr Gln Ala |      |      |      |      |     |      |
|   | 900  |      |      | 905  |     | 910  |
| Gln Glu Met Glu Lys Gln Gly Lys Tyr Arg Glu Ala Glu Arg Leu Tyr |      |      |      |      |     |      |
|   | 915  |      | 920  |      | 925 |      |
| Val Thr Val Gln Glu Pro Asp Leu Ala Ile Thr Met Tyr Lys Lys His |      |      |      |      |     |      |
|   | 930  |      | 935  |      | 940 |      |
| Lys Leu Tyr Asp Asp Met Ile Arg Leu Val Gly Lys His His Pro Asp |      |      |      |      |     |      |
| 945   |      | 950  |      | 955  |     | 960  |
| Leu Leu Ser Asp Thr His Leu His Leu Gly Lys Glu Leu Glu Ala Glu |      |      |      |      |     |      |
|   | 965  |      | 970  |      |     | 975  |
| Gly Arg Leu Gln Glu Ala Glu Tyr His Tyr Leu Glu Ala Gln Glu Trp |      |      |      |      |     |      |
|   | 980  |      | 985  |      |     | 990  |
| Lys Ala Thr Val Asn Met Tyr Arg Ala Ser Gly Leu Trp Glu Glu Ala |      |      |      |      |     |      |
|   | 995  |      | 1000 |      |     | 1005 |
| Tyr Arg Val Ala Arg Thr Gln Gly Gly Ala Asn Ala His Lys His Val |      |      |      |      |     |      |
|   | 1010 |      | 1015 |      |     | 1020 |
| Ala Tyr Leu Trp Ala Lys Ser Leu Gly Gly Glu Ala Ala Val Arg Leu |      |      |      |      |     |      |
| 1025  |      | 1030 |      | 1035 |     | 1040 |
| Leu Asn Lys Leu Gly Leu Leu Glu Ala Ala Val Asp His Ala Ala Asp |      |      |      |      |     |      |
|   | 1045 |      | 1050 |      |     | 1055 |
| Asn Cys Ser Phe Glu Phe Ala Phe Glu Leu Ser Arg Leu Ala Leu Lys |      |      |      |      |     |      |
|   | 1060 |      | 1065 |      |     | 1070 |
| His Lys Thr Pro Glu Val His Leu Lys Tyr Ala Met Phe Leu Glu Asp |      |      |      |      |     |      |
|   | 1075 |      | 1080 |      |     | 1085 |
| Glu Gly Lys Phe Glu Glu Ala Glu Ala Glu Phe Ile Arg Ala Gly Lys |      |      |      |      |     |      |
|   | 1090 |      | 1095 |      |     | 1100 |
| Pro Lys Glu Ala Val Leu Met Phe Val His Asn Gln Asp Trp Glu Ala |      |      |      |      |     |      |
| 1105  |      | 1110 |      | 1115 |     | 1120 |
| Ala Gln Arg Val Ala Glu Ala His Asp Pro Asp Ser Val Ala Glu Val |      |      |      |      |     |      |
|   | 1125 |      | 1130 |      |     | 1135 |
| Leu Val Gly Gln Ala Arg Gly Ala Leu Glu Glu Lys Asp Phe Gln Lys |      |      |      |      |     |      |
|   | 1140 |      | 1145 |      |     | 1150 |
| Ala Glu Gly Leu Leu Leu Arg Ala Gln Arg Pro Gly Leu Ala Leu Asn |      |      |      |      |     |      |
|   | 1155 |      | 1160 |      |     | 1165 |
| Tyr Tyr Lys Glu Ala Gly Leu Trp Ser Asp Ala Leu Arg Ile Cys Lys |      |      |      |      |     |      |
|   | 1170 |      | 1175 |      |     | 1180 |
| Asp Tyr Val Pro Ser Gln Leu Glu Ala Leu Gln Glu Tyr Glu Arg     |      |      |      |      |     |      |
| 1185  |      | 1190 |      | 1195 |     | 1200 |
| Glu Ala Thr Lys Lys Gly Ala Arg Gly Val Glu Gly Phe Val Glu Gln |      |      |      |      |     |      |
|   | 1205 |      | 1210 |      |     | 1215 |
| Ala Arg His Trp Glu Gln Ala Gly Glu Tyr Ser Arg Ala Val Asp Cys |      |      |      |      |     |      |
|   | 1220 |      | 1225 |      |     | 1230 |
| Tyr Leu Lys Val Arg Asp Ser Gly Asn Ser Gly Leu Ala Glu Lys Cys |      |      |      |      |     |      |
|   | 1235 |      | 1240 |      |     | 1245 |
| Trp Met Lys Ala Ala Glu Leu Ser Ile Lys Phe Leu Pro Pro Gln Arg |      |      |      |      |     |      |
|   | 1250 |      | 1255 |      |     | 1260 |
| Asn Met Glu Val Val Leu Ala Val Gly Pro Gln Leu Ile Gly Ile Gly |      |      |      |      |     |      |
| 1265  |      | 1270 |      | 1275 |     | 1280 |
| Lys His Ser Ala Ala Glu Leu Tyr Leu Asn Leu Asp Leu Val Lys     |      |      |      |      |     |      |
|   | 1285 |      | 1290 |      |     | 1295 |
| Glu Ala Ile Asp Ala Phe Ile Glu Gly Glu Glu Trp Asn Lys Ala Lys |      |      |      |      |     |      |

|   |                                     |      |
|---|-------------------------------------|------|
| 1300  | 1305                                | 1310 |
| Arg Val Ala Lys Glu Leu Asp                                     | Pro Arg Tyr Glu Asp Tyr Val Asp Gln |      |
| 1315  | 1320                                | 1325 |
| His Tyr Lys Glu Phe Leu Lys Asn Gln Gly Lys Val Asp Ser Leu Val |                                     |      |
| 1330  | 1335                                | 1340 |
| Gly Val Asp Val Ile Ala Ala Leu Asp Leu Tyr Val Glu Gln Gly Gln |                                     |      |
| 1345  | 1350                                | 1355 |
| Trp Asp Lys Cys Ile Glu Thr Ala Thr Lys Gln Asn Tyr Lys Ile Leu |                                     | 1360 |
| 1365  | 1370                                | 1375 |
| His Lys Tyr Val Ala Leu Tyr Ala Thr His Leu Ile Arg Glu Gly Ser |                                     |      |
| 1380  | 1385                                | 1390 |
| Ser Ala Gln Ala Leu Ala Leu Tyr Val Gln His Gly Ala Pro Ala Asn |                                     |      |
| 1395  | 1400                                | 1405 |
| Pro Gln Asn Phe Asn Ile Tyr Lys Arg Ile Phe Thr Asp Met Val Ser |                                     |      |
| 1410  | 1415                                | 1420 |
| Ser Pro Gly Thr Asn Cys Ala Glu Ala Tyr His Ser Trp Ala Asp Leu |                                     |      |
| 1425  | 1430                                | 1435 |
| Arg Asp Val Leu Phe Asn Leu Ala Val Leu Ser Pro Ser Ser Ser Val |                                     |      |
| 1445  | 1450                                | 1455 |
| Lys Thr Trp Lys Ser Ser Glu Ala Asn Ser Pro Ala His Glu Glu Phe |                                     |      |
| 1460  | 1465                                | 1470 |
| Lys Thr Met Leu Leu Ile Ala His Tyr Tyr Ala Thr Arg Ser Ala Ala |                                     |      |
| 1475  | 1480                                | 1485 |
| Gln Ser Val Lys Gln Leu Glu Thr Val Ala Ala Arg Leu Ser Val Ser |                                     |      |
| 1490  | 1495                                | 1500 |
| Leu Leu Arg His Thr Gln Leu Leu Pro Val Asp Lys Ala Phe Tyr Glu |                                     |      |
| 1505  | 1510                                | 1515 |
| Ala Gly Ile Ala Ala Lys Ala Val Gly Trp Asp Asn Met Ala Phe Ile |                                     |      |
| 1525  | 1530                                | 1535 |
| Phe Leu Asn Arg Phe Leu Asp Leu Thr Asp Ala Ile Glu Glu Gly Thr |                                     |      |
| 1540  | 1545                                | 1550 |
| Leu Asp Gly Leu Asp His Ser Asp Phe Gln Asp Thr Asp Ile Pro Phe |                                     |      |
| 1555  | 1560                                | 1565 |
| Glu Val Pro Leu Pro Ala Lys Gln His Val Pro Glu Ala Glu Arg Glu |                                     |      |
| 1570  | 1575                                | 1580 |
| Glu Val Arg Asp Trp Val Leu Thr Val Ser Met Asp Gln Arg Leu Glu |                                     |      |
| 1585  | 1590                                | 1595 |
| Gln Val Leu Pro Arg Asp Glu Arg Gly Ala Tyr Glu Ala Ser Leu Val |                                     |      |
| 1605  | 1610                                | 1615 |
| Ala Ala Ser Thr Gly Val Arg Ala Leu Pro Cys Leu Ile Thr Gly Tyr |                                     |      |
| 1620  | 1625                                | 1630 |
| Pro Ile Leu Arg Asn Lys Ile Glu Phe Lys Arg Pro Gly Lys Ala Ala |                                     |      |
| 1635  | 1640                                | 1645 |
| Asn Lys Asp Asn Trp Asn Lys Phe Leu Met Ala Ile Lys Thr Ser His |                                     |      |
| 1650  | 1655                                | 1660 |
| Ser Pro Val Cys Gln Asp Val Leu Lys Phe Ile Ser Gln Trp Cys Gly |                                     |      |
| 1665  | 1670                                | 1675 |
| Gly Leu Pro Ser Thr Ser Phe Ser Phe Gln                         |                                     | 1680 |
| 1685  | 1690                                |      |

&lt;210&gt; 4025

&lt;211&gt; 908

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens



&lt;400&gt; 4025

ttaagaactc acactggann gaaaccctat gaatgcaatc actgtgggaa agcatttagt  
 60  
 gatccctcat cccttagact gcatttgaga attcacactg gagaaaaacc ctatgaatgt  
 120  
 aaccagtgtt ttcacgtttt ccgcaccagt tgtaacctta aaagccacaa gaggattcac  
 180  
 acggggggaga atcaccatga atgtaatcag tgtggaaaag ctttcagcac aaggctcctt  
 240  
 ctactgggc acaattgcat tcatacaggg gagaaacctt atgaatgtaa ggaatgtggg  
 300  
 aaaaccttta tgtataattc atcccttatt caacatctga gaactcatatc tggagagaaa  
 360  
 ccctatgaat gtaaggagtg tgggaaagcc tttaggcaac attcacacct tgtcacacac  
 420  
 cagaaaatcc atactggaga gaagccctat cagtgcactg aatgtgggaa agccttcagg  
 480  
 cggcgttcac tccttattca acatcggaga attcatagtg gtgagaagcc ctatgaatgt  
 540  
 aaggaatgtg ggaagctctt catttggcgc acagctttcc tcaaacaatca gagcctgcat  
 600  
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 660  
 gagnagcaga aaattcacca agaagagaaa gcttattggt gtaatcagtg tggtagggct  
 720  
 ttccagggca gtcagacct catcggacat caggtaactc atacaggaga gaaaccatat  
 780  
 gaatgtaaag aatgtggana aactttcaat cagagctcag accttctgag acatcataga  
 840  
 attcacagtg gagaaaaacc ttatgtatgc aacaaatgtg ggaaatcttt taggggcagc  
 900  
 tcagatct  
 908

&lt;210&gt; 4026

&lt;211&gt; 302

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4026

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Arg | Thr | His | Thr | Gly | Xaa | Lys | Pro | Tyr | Glu | Cys | Asn | His | Cys | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Lys | Ala | Phe | Ser | Asp | Pro | Ser | Ser | Leu | Arg | Leu | His | Leu | Arg | Ile | His |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Gly | Glu | Lys | Pro | Tyr | Glu | Cys | Asn | Gln | Cys | Phe | His | Val | Phe | Arg |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Thr | Ser | Cys | Asn | Leu | Lys | Ser | His | Lys | Arg | Ile | His | Thr | Gly | Glu | Asn |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| His | His | Glu | Cys | Asn | Gln | Cys | Gly | Lys | Ala | Phe | Ser | Thr | Arg | Ser | Ser |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Leu | Thr | Gly | His | Asn | Cys | Ile | His | Thr | Gly | Glu | Lys | Pro | Tyr | Glu | Cys |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Lys | Glu | Cys | Gly | Lys | Thr | Phe | Met | Tyr | Asn | Ser | Ser | Leu | Ile | Gln | His |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 100 |     | 105 |     | 110 |     |     |     |     |     |     |     |     |     |     |
| Leu | Arg | Thr | His | Thr | Gly | Glu | Lys | Pro | Tyr | Glu | Cys | Lys | Glu | Cys | Gly |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Lys | Ala | Phe | Arg | Gln | His | Ser | His | Leu | Val | Thr | His | Gln | Lys | Ile | His |
|     | 130 |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |
| Thr | Gly | Glu | Lys | Pro | Tyr | Gln | Cys | Thr | Glu | Cys | Gly | Lys | Ala | Phe | Arg |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Arg | Arg | Ser | Leu | Leu | Ile | Gln | His | Arg | Arg | Ile | His | Ser | Gly | Glu | Lys |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Pro | Tyr | Glu | Cys | Lys | Glu | Cys | Gly | Lys | Leu | Phe | Ile | Trp | Arg | Thr | Ala |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Phe | Leu | Lys | His | Gln | Ser | Leu | His | Ala | Gly | Glu | Lys | Leu | Glu | Glu | Cys |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Glu | Lys | Xaa | Pro | Ser | Ala | Arg | Met | Arg | Ser | Leu | Gly | Glu | Xaa | Gln | Lys |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ile | His | Gln | Glu | Glu | Lys | Ala | Tyr | Trp | Cys | Asn | Gln | Cys | Gly | Arg | Ala |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Phe | Gln | Gly | Ser | Ser | Asp | Leu | Ile | Gly | His | Gln | Val | Thr | His | Thr | Gly |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |     |
| Glu | Lys | Pro | Tyr | Glu | Cys | Lys | Glu | Cys | Gly | Xaa | Thr | Phe | Asn | Gln | Ser |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ser | Asp | Leu | Arg | His | His | Arg | Ile | His | Ser | Gly | Glu | Lys | Pro | Tyr |     |
|     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |
| Val | Cys | Asn | Lys | Cys | Gly | Lys | Ser | Phe | Arg | Gly | Ser | Ser | Asp |     |     |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |

&lt;210&gt; 4027

&lt;211&gt; 941

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4027

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 60  
 aaggcgggtgg tactgcatgt gcttccagag gagcccaaag agctcatggt ccatgtgggt  
 120  
 ggattgattc agatgggatg tgttttccag agcacagaag tgaaacacgt gaccaaggta  
 180  
 gaatggatat ttccaggacg gcgcgcaaag gaggagattg tatttcgtta ctaccacaaa  
 240  
 ctcaggatgt ctgcggagta ctcccagagc tggggccact tccagaatcg tgtgaacctg  
 300  
 gtgggggaca ttttccgcaa tgacgggtcc atcatgcttc aaggagttag ggagtcagat  
 360  
 ggaggaaact acacctgcag tatccaccta gggaacctgg tgttcaagaa aaccattgtg  
 420  
 ctgcatgtca gcccggaaga gcctcgaaca ctggtgaccc cggcagccct gaggcctctg  
 480  
 gtcttgggtg gtaatcagtt ggtgatcatt gtgggaattg tctgtgccac aatcctgctg  
 540  
 ctccctgttc tgatattgat cgtgaagaag acctgtggaa ataagagttc agtgaattct  
 600  
 acagtcttgg tgaagaacac gaagaagact aatccagaga tgaaagaaaa accctgccat  
 660

ttgaaagat gtgaagggga ggtgaacaca cgcttcagcc taaaacacta agtagatgca  
 720  
 ggctggggcc gttctcatat ccccggaac catatcttac ccattgtatg tcgcagcttg  
 780  
 caggccagtg cttggcacag agcagggact caggaagcct ttgtcactaa agtaagagcc  
 840  
 tctgaggagt acagtgcatt gggtcggctg ggacaccccc aggcagcaga tcctgggtatt  
 900  
 gggctgagga aagagcactg cgcttgaggat cagtaagatc t  
 941

<210> 4028

<211> 236

<212> PRT

<213> Homo sapiens

<400> 4028

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Arg | Gln | Gly | Thr | Tyr | Ile | Cys | Glu | Ile | Arg | Leu | Lys | Gly | Glu | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Val | Phe | Lys | Lys | Ala | Val | Val | Leu | His | Val | Leu | Pro | Glu | Glu | Pro |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Lys | Glu | Leu | Met | Val | His | Val | Gly | Gly | Leu | Ile | Gln | Met | Gly | Cys | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Phe | Gln | Ser | Thr | Glu | Val | Lys | His | Val | Thr | Lys | Val | Glu | Trp | Ile | Phe |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ser | Gly | Arg | Arg | Ala | Lys | Glu | Glu | Ile | Val | Phe | Arg | Tyr | Tyr | His | Lys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Leu | Arg | Met | Ser | Ala | Glu | Tyr | Ser | Gln | Ser | Trp | Gly | His | Phe | Gln | Asn |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Arg | Val | Asn | Leu | Val | Gly | Asp | Ile | Phe | Arg | Asn | Asp | Gly | Ser | Ile | Met |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Gln | Gly | Val | Arg | Glu | Ser | Asp | Gly | Gly | Asn | Tyr | Thr | Cys | Ser | Ile |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |
| His | Leu | Gly | Asn | Leu | Val | Phe | Lys | Lys | Thr | Ile | Val | Leu | His | Val | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Pro | Glu | Glu | Pro | Arg | Thr | Leu | Val | Thr | Pro | Ala | Ala | Leu | Arg | Pro | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Val | Leu | Gly | Gly | Asn | Gln | Leu | Val | Ile | Ile | Val | Gly | Ile | Val | Cys | Ala |
|     |     |     |     | 165 |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Thr | Ile | Leu | Leu | Leu | Pro | Val | Leu | Ile | Leu | Ile | Val | Lys | Lys | Thr | Cys |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Gly | Asn | Lys | Ser | Ser | Val | Asn | Ser | Thr | Val | Leu | Val | Lys | Asn | Thr | Lys |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Lys | Thr | Asn | Pro | Glu | Met | Lys | Glu | Lys | Pro | Cys | His | Phe | Glu | Arg | Cys |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Glu | Gly | Glu | Val | Asn | Thr | Arg | Phe | Ser | Leu | Lys | His |     |     |     |     |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     |     |

<210> 4029

<211> 909

<212> DNA

<213> Homo sapiens

<400> 4029

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 120  
 ctacatgctg ctgctgggtgc tgccgtgcgt ggcgctcagc gaggtcagca tgcagggcga  
 180  
 gcacatagcg ccgcagaaga tgatgctgta cccggtgctc agtctcgcca ccgtcaatgt  
 240  
 ggtgggcccgt gctggcgccg gccgccaaca tggcgctgtt ccgggacagc cgtgtctcgg  
 300  
 ccattcttctg cggcaaaaac gtggtggcgc tcgccaccaa ggcctgcacc tnntcctgga  
 360  
 gtaccgcccgc caggtgcgcg acttcccnng ccgcctgcgc tatcactgga gctgcagccg  
 420  
 ccacccccgc agcgcaactc ggtgccgcgc ccgcgcgcgc cgctgcacgg cccgcctggg  
 480  
 ncgccccac atgtcctcgc ccacgcgtga cccctggac acgtgacagg gcccgcgccg  
 540  
 ccccgacac gccctgggg cgcagagaca ccgggttggc ttggggcgcg cggtttgcac  
 600  
 gggatggggg gggggcgggc tcccctaggg acaggtgcct cgagtgcggc tgcctggggg  
 660  
 cccgcggccg cttcttcac tcaggaatct ctcgaccgc ggatcctcag ccccgctcc  
 720  
 accagcccgc cccagcgcgt gggctctgtt gggaggcctg ggccggagca gagcagaggt  
 780  
 gatccggccc ctgcctgctg ggccgcccgg gttggaaggg agggcagtgt gggcggagat  
 840  
 ctgctccttc ggtggggggc tctggctcag atttggggcc aaggaggcct ctgtcatttt  
 900  
 aaagactcg  
 909

&lt;210&gt; 4030

&lt;211&gt; 169

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4030

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Pro | Pro | Val | Leu | Gly | Gly | Ala | Gly | Pro | Ala | Gly | Pro | Ala | Gly | His |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Ala | Gly | Gln | Pro | Val | Gly | Ala | Ala | Ala | Leu | Arg | Ala | Ala | Ala | Val | Gly |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |
| Arg | Gly | Pro | His | Leu | Leu | Leu | Leu | Leu | His | Ala | Ala | Ala | Gly | Ala | Ala |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |
| Val | Arg | Gly | Ala | Gln | Arg | Gly | Gln | His | Ala | Gly | Arg | Ala | His | Ser | Ala |
|     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |
| Ala | Glu | Asp | Asp | Ala | Val | Pro | Gly | Ala | Gln | Ser | Arg | His | Arg | Gln | Cys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gly | Gly | Pro | Cys | Trp | Arg | Ala | Pro | Pro | Thr | Trp | Arg | Cys | Ser | Gly | Thr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ala | Val | Ser | Arg | Pro | Ser | Ser | Ser | Ala | Lys | Thr | Trp | Trp | Arg | Ser | Pro |
|     |     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |
| Pro | Arg | Pro | Ala | Pro | Xaa | Pro | Gly | Val | Pro | Pro | Pro | Gly | Ala | Arg | Leu |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 115 |     | 120 |     | 125 |     |     |     |     |     |     |     |     |     |     |
| Pro | Xaa | Pro | Pro | Ala | Leu | Ser | Leu | Glu | Leu | Gln | Pro | Pro | Pro | Pro | Gln |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Arg | Asn | Ser | Val | Pro | Pro | Pro | Pro | Pro | Pro | Leu | His | Gly | Pro | Pro | Gly |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Xaa | Pro | Pro | His | Val | Leu | Ala | His | Ala |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 4031  
 <211> 1406  
 <212> DNA  
 <213> Homo sapiens

<400> 4031  
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 ctcaggaaag aaattgcagg cttcgaacaa cagaaagcaa aagaattagc tcgaatagaa  
 120  
 gagtttaaaa aggaggagat gaggaagcta caaaaggaac gtaaagtttt tgaaaagtat  
 180  
 actacagctg caagaacttt tccagataaa aaggaacgtg aagaaatata gactttaaaa  
 240  
 cagcaaatag cagattttacg ggaagatttg aaaagaaagg agaccaaatg gtcaagtaca  
 300  
 cacagccgtc tcagaagcca gatacaaatg ttagtcagag agaacacaga cctccgggaa  
 360  
 gaaataaaaag tgatggaaag attccgactg gatgcctgga agagagcaga agccatagag  
 420  
 agcagcctcg aggtggagaa gaaggacaag cttgcgaaca catctgttcg atttcaaaac  
 480  
 agtcagattt cttcaggaac ccaggtagaa aaatacaaga aaaattatct tccaatgcaa  
 540  
 ggcaatccac ctcgaagatc caagtctgca cctcctcgtg atttaggcaa tttggataag  
 600  
 ggacaggctg cctctcccag ggagccactt gaaccactga acttcccaga tcttgaatat  
 660  
 aaagaggagg aggaagacca agacatacag ggagaaatca gtcactcctga tggaaagggtg  
 720  
 gaaaaggttt ataagaatgg gtgccgtgtt atactgtttc ccaatggaac tcgaaaggaa  
 780  
 gtgagtgcag atgggaagac catcactgtc actttcttta atggtgacgt gaagcaggtc  
 840  
 atgccagacc aaagagtgat ctactactat gcagctgccc agaccactca cagcacatac  
 900  
 ccggagggac tggaagtctt acattttctca agtggacaaa tagaaaaaca ttaccagat  
 960  
 ggaagaaaag aaatcacgtt tcttgaccag actgttaaaa acttatttcc tgatggacaa  
 1020  
 gaagaaagca ttttcccaga tgggtacaatt gtcagagtac aacgtgatgg caacaaactc  
 1080  
 atagagttta ataatggcca aagagaacta catactgccc agttcaagag acgggaatac  
 1140  
 ccagatggca ctgttaaaac cgtatatgca aacggtcatc aagaaacgaa gtacagatcc  
 1200

ggtcggataa gagttaagga caaggagggt aatgtgctaa tggacacgga gctgtgacga  
 1260  
 tcctcatgtg atcatgaagt aacagtaact gactttttat gttaaaaaat gtacatttac  
 1320  
 tgtggattct gtttaattta ttgtgtatgt gtggggaaaa gattggattc taaaataaaa  
 1380  
 gtttacctg tggcaaaaaa aaaaaa  
 1406

<210> 4032

<211> 418

<212> PRT

<213> Homo sapiens

<400> 4032

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Glu | Asn | Ala | Ser | Leu | Ala | Lys | Leu | Arg | Ile | Glu | Arg | Glu | Ser |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Ala | Leu | Glu | Lys | Leu | Arg | Lys | Glu | Ile | Ala | Gly | Phe | Glu | Gln | Gln | Lys |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Ala | Lys | Glu | Leu | Ala | Arg | Ile | Glu | Glu | Phe | Lys | Lys | Glu | Glu | Met | Arg |
|     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Lys | Leu | Gln | Lys | Glu | Arg | Lys | Val | Phe | Glu | Lys | Tyr | Thr | Thr | Ala | Ala |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Arg | Thr | Phe | Pro | Asp | Lys | Glu | Arg | Glu | Glu | Ile | Gln | Thr | Leu | Lys |     |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |
| Gln | Gln | Ile | Ala | Asp | Leu | Arg | Glu | Asp | Leu | Lys | Arg | Lys | Glu | Thr | Lys |
|     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |
| Trp | Ser | Ser | Thr | His | Ser | Arg | Leu | Arg | Ser | Gln | Ile | Gln | Met | Leu | Val |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Arg | Glu | Asn | Thr | Asp | Leu | Arg | Glu | Glu | Ile | Lys | Val | Met | Glu | Arg | Phe |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Arg | Leu | Asp | Ala | Trp | Lys | Arg | Ala | Glu | Ala | Ile | Glu | Ser | Ser | Leu | Glu |
|     | 130 |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |     |
| Val | Glu | Lys | Lys | Asp | Lys | Leu | Ala | Asn | Thr | Ser | Val | Arg | Phe | Gln | Asn |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Ser | Gln | Ile | Ser | Ser | Gly | Thr | Gln | Val | Glu | Lys | Tyr | Lys | Lys | Asn | Tyr |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Leu | Pro | Met | Gln | Gly | Asn | Pro | Pro | Arg | Arg | Ser | Lys | Ser | Ala | Pro | Pro |
|     |     |     | 180 |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Arg | Asp | Leu | Gly | Asn | Leu | Asp | Lys | Gly | Gln | Ala | Ala | Ser | Pro | Arg | Glu |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Pro | Leu | Glu | Pro | Leu | Asn | Phe | Pro | Asp | Pro | Glu | Tyr | Lys | Glu | Glu | Glu |
|     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |
| Glu | Asp | Gln | Asp | Ile | Gln | Gly | Glu | Ile | Ser | His | Pro | Asp | Gly | Lys | Val |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     | 240 |     |
| Glu | Lys | Val | Tyr | Lys | Asn | Gly | Cys | Arg | Val | Ile | Leu | Phe | Pro | Asn | Gly |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Thr | Arg | Lys | Glu | Val | Ser | Ala | Asp | Gly | Lys | Thr | Ile | Thr | Val | Thr | Phe |
|     |     |     | 260 |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Phe | Asn | Gly | Asp | Val | Lys | Gln | Val | Met | Pro | Asp | Gln | Arg | Val | Ile | Tyr |
|     | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Tyr | Tyr | Ala | Ala | Ala | Gln | Thr | His | Thr | Thr | Tyr | Pro | Glu | Gly | Leu |     |
|     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |     |
| Glu | Val | Leu | His | Phe | Ser | Ser | Gly | Gln | Ile | Glu | Lys | His | Tyr | Pro | Asp |

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305          310          315          320
Gly Arg Lys Glu Ile Thr Phe Pro Asp Gln Thr Val Lys Asn Leu Phe
          325          330          335
Pro Asp Gly Gln Glu Glu Ser Ile Phe Pro Asp Gly Thr Ile Val Arg
          340          345          350
Val Gln Arg Asp Gly Asn Lys Leu Ile Glu Phe Asn Asn Gly Gln Arg
          355          360          365
Glu Leu His Thr Ala Gln Phe Lys Arg Arg Glu Tyr Pro Asp Gly Thr
          370          375          380
Val Lys Thr Val Tyr Ala Asn Gly His Gln Glu Thr Lys Tyr Arg Ser
385          390          395          400
Gly Arg Ile Arg Val Lys Asp Lys Glu Gly Asn Val Leu Met Asp Thr
          405          410          415
Glu Leu

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<210> 4033  
 <211> 487  
 <212> DNA  
 <213> Homo sapiens

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<400> 4033
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60
gggtttttgat gggatagcag acaggtggat tgcagagctc cggaaagacc cagccgggtg
120
tcaagaagag cctccttagt ttggcctcta actggctgtg cgaccccagg caggtcactt
180
gtcctctctg ggaagcagct gaataatgaa cactgggatt ttcccaggct ggcttctcac
240
tgcagagcag aggaaaagca ttctgggggc ctgctatgga gggtcattta tccagtttac
300
aacttccacg gccggccctc aatggcttcc tttctctccc acaagagcgc tgggccaaagc
360
cagctctgca ccagttggac gccttccaag aaaaactcag gctccggggg ctgcttgta
420
ggaccagacg ggaggcctgg cgcccccgcc cgccatgtgt ggggagcggg cctctccaag
480
ccagtcc
487

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<210> 4034  
 <211> 94  
 <212> PRT  
 <213> Homo sapiens

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<400> 4034
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1          5          10          15
Lys Ser Ile Leu Gly Ala Cys Tyr Gly Gly Ser Phe Ile Gln Phe Thr
          20          25          30
Thr Ser Thr Ala Gly Pro Gln Trp Leu Pro Phe Ser Pro Thr Arg Ala
          35          40          45
Leu Gly Gln Ala Ser Ser Ala Pro Val Gly Arg Leu Pro Arg Lys Thr

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      50              55              60
Gln Ala Pro Gly Ala Ala Cys Gln Asp Gln Thr Gly Gly Leu Ala Pro
65              70              75              80
Pro Pro Ala Met Cys Gly Glu Arg Ala Ser Pro Ser Gln Ser
      85              90

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<210> 4035  
 <211> 343  
 <212> DNA  
 <213> Homo sapiens

<400> 4035  
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 60  
 aatgtttctgg aatcctatgt gagggacaaa cattcagacc ccagcagcaa tgttctggaa  
 120  
 tcctatggga gggacaaact ctcagaaaat agcaagagta ttttggaaat ctatctgagg  
 180  
 tataaacact cagaacctca tagcagtgtt caggaatcct atgtgaggga caaacattca  
 240  
 gaccacagca ggagcattct agaatcctat ttgaggaaca aacattcaga caatcgtagc  
 300  
 agtgtttctgg aatccttttt ttttttgaag ctttcaatct ctt  
 343

<210> 4036  
 <211> 114  
 <212> PRT  
 <213> Homo sapiens

<400> 4036  
 Xaa Leu Asn Ser Ser Val Met Glu Phe His Val Arg His Lys His Ser  
 1 5 10 15  
 Asp Asn Pro Ser Asn Val Leu Glu Ser Tyr Val Arg Asp Lys His Ser  
 20 25 30  
 Asp Pro Ser Ser Asn Val Leu Glu Ser Tyr Gly Arg Asp Lys Leu Ser  
 35 40 45  
 Glu Asn Ser Lys Ser Ile Leu Glu Ser Tyr Leu Arg Tyr Lys His Ser  
 50 55 60  
 Glu Pro His Ser Ser Val Gln Glu Ser Tyr Val Arg Asp Lys His Ser  
 65 70 75 80  
 Asp His Ser Arg Ser Ile Leu Glu Ser Tyr Leu Arg Asn Lys His Ser  
 85 90 95  
 Asp Asn Arg Ser Ser Val Leu Glu Ser Phe Phe Phe Leu Lys Leu Ser  
 100 105 110  
 Ile Ser

<210> 4037  
 <211> 741  
 <212> DNA  
 <213> Homo sapiens

<400> 4037



tttttttttt ttttttttgg aaagagaaaa tatatttact attcattaag tggatgcggg  
 60  
 tcatcataaa ggtcttcatt ctcatcctct tcacgttgag taggctgagg aggaggaaga  
 120  
 ggaggagaag ggggttggtct tgctgtctca gggcggcaga ggcagaagag aatctgagca  
 180  
 tacgtggacc tgtagccagg tgggcataga taaaaggaaa tattgtttgc cagtccctgc  
 240  
 tggaatgatg cctttacaca tctgtctgat ctgattgctc cactgttttc tgactttctt  
 300  
 tccctttcca gggttctagc ctgttcatct agcccatga tggctgtgga catcgagtac  
 360  
 agatacaact gcatggctcc ttccttgccg caagagaggt ttgcctttaa gatctcacca  
 420  
 aagcccagca aaccactgag gccttgattt cagctgagca gcaagaatga agccagtggg  
 480  
 atgggtggccc cggtgtgcca ggagaagaag gtgaaaaagc ggggtgtcctt cgcagacaac  
 540  
 caggggctgg cctgacaat ggtcaaagtg ttctcggaat tcgatgaccc gctagatatg  
 600  
 ccattcaaca tcaccgagct cctagacaac attgtgagct tgacgacagc agagagcgag  
 660  
 agctttgttc tggatttttc ccagccctct gcagattact tagactttag aaatcgactt  
 720  
 caggccgacc acgtctgcct t  
 741

&lt;210&gt; 4038

&lt;211&gt; 134

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4038

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Val | Asp | Ile | Glu | Tyr | Arg | Tyr | Asn | Cys | Met | Ala | Pro | Ser | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Gln | Glu | Arg | Phe | Ala | Phe | Lys | Ile | Ser | Pro | Lys | Pro | Ser | Lys | Pro |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Arg | Pro | Cys | Ile | Gln | Leu | Ser | Ser | Lys | Asn | Glu | Ala | Ser | Gly | Met |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Ala | Pro | Ala | Val | Gln | Glu | Lys | Lys | Val | Lys | Lys | Arg | Val | Ser | Phe |
|     |     |     | 50  |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ala | Asp | Asn | Gln | Gly | Leu | Ala | Leu | Thr | Met | Val | Lys | Val | Phe | Ser | Glu |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Phe | Asp | Asp | Pro | Leu | Asp | Met | Pro | Phe | Asn | Ile | Thr | Glu | Leu | Leu | Asp |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Asn | Ile | Val | Ser | Leu | Thr | Thr | Ala | Glu | Ser | Glu | Ser | Phe | Val | Leu | Asp |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Phe | Ser | Gln | Pro | Ser | Ala | Asp | Tyr | Leu | Asp | Phe | Arg | Asn | Arg | Leu | Gln |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |
| Ala | Asp | His | Val | Cys | Leu |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4039

&lt;211&gt; 1503

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4039

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gctgcgcgcg tcggagaggc tcctggggaa actcccacgg cccagggact ttcgaaagca  
120  
gagcgaggag ccctcgcacg cgctagtctg cgagtgagcg ctcagcccgg cacctgttcc  
180  
tccagcgccg ccgccttccc acccctcgga cccgcgcgcg tcgcggcgcc cgcccgttcc  
240  
tgcgatgaat ccggccctag gcaaccagac ggacgtggcg ggccttcctg gccaacagca  
300  
gcgaggcgct ggagcgagcc gtgcgctgct gcacccaggc gtccgtggtg accgacgacg  
360  
gcttcgcgga gggaggcccg gacgagcgta gcctgtacat aatgcgcgtg gtgcagatcg  
420  
cggtcacgtg cgtgctctca ctcaccgtgg tcttcggcat cttcttcttc ggctgcaatc  
480  
tgctcatcaa gtccgagggc atgatcaact tcctcgtgaa ggaccggagg ccgtctaagg  
540  
aggtggaggc ggtggtcgtg gggccctact gaccgcacct ctgccccgcg ggcaaccgct  
600  
cccacgcctg cccactttgc tagcccggtg gtgccccca ctatcagaga ctgggcgaag  
660  
caaacctgtc ggagtcaatt atttctctcg acttcggcct ttcggaaaga agcgaccggt  
720  
ttctccctcg ccctctgaaa gtcctcatgc ctggcagtcg gaggagagcg cccagactct  
780  
gaactcagca gaaagtggca agaagagggc gattagggcg cagaactttg gaagctgcta  
840  
cttacttgga atgcggggag accgacggtg cgaaggccct tctccaccg cagggtgggc  
900  
aagctctggg ggcaggtgga gagggcgggc aggggagaga cccagcggca ctgatcgct  
960  
tgtgaccgga agagtgaact gttaaaagcc acgcagcaga ctcatggggt ctcacaaatc  
1020  
cgtgtccggg tgcgctccca ctcttctcct gctccccccc tgccctgga ggggaggggc  
1080  
gataaatacc ttgattgta acgtgccgtt ttaagaggtt ttgtgtttgt ttgcttgaat  
1140  
acaaatgttt gataagtctt tttctgcccc agtggcctgt ttgcctgcct gaggagttac  
1200  
agttttgtca ttgtggaaga aggggtgggg ggagggggag cctgcgaatt tgaacggggg  
1260  
gagttgtttc ttttagtgca tttccactg ggtcttttgg gaggcgtcta gcgttctcgc  
1320  
tggccctggg acaaagaccc agaatagaac tcgtagctcg tgactgcacg gtttacgcc  
1380  
caaaagtgtc cttgacatcc gtgacaccgt tttgactttt tgtttttttc ttatttaaca  
1440  
tttcttaaat aaatgcaaca ttttagcggt aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa  
1500

aaa  
1503

<210> 4040  
<211> 100  
<212> PRT  
<213> Homo sapiens

<400> 4040  
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Thr Ala Gln Gly Leu Ser Lys Ala Glu Arg Gly Ala Leu Ala Arg Ala  
20 25 30  
Ser Leu Arg Val Ser Ala Gln Pro Gly Thr Cys Ser Ser Ser Ala Ala  
35 40 45  
Ala Phe Pro Pro Leu Gly Pro Ala Pro Leu Ala Ala Pro Ala Arg Ser  
50 55 60  
Cys Asp Glu Ser Gly Pro Arg Gln Pro Asp Gly Arg Gly Gly Pro Ser  
65 70 75 80  
Trp Pro Thr Ala Ala Arg Arg Trp Ser Glu Pro Cys Ala Ala Ala Pro  
85 90 95  
Arg Arg Pro Trp  
100

<210> 4041  
<211> 573  
<212> DNA  
<213> Homo sapiens

<400> 4041  
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ggtgagattc cagctgaatt aagggcgggcg gccactgacc accggcagga gctaattgaa  
120  
tgtgttgcca attcagatga acagcttggg gagatgtttc tggaagaaaa aatccccctcg  
180  
atttctgatt taaagctagc aattcgaaga gctactctga aaagatcatt tactcctgta  
240  
tttttgggaa ggcgcttgaa gaacaaagga gttcagcctc ttttagatgc tgttttagaa  
300  
tacctcccaa atccatctga agtccagaac tatgctattc tcaataaaga ggatgactca  
360  
aaagagaaaa ccaaaatcct aatgaactcc agtagagaca attcccaccc atttgttaggc  
420  
ctggctttta aactggaggt aggtcgattt ggacaattaa cttatgttcg cagttatcag  
480  
ggagagctaa agaagggtga caccatctat aacacaagga caagaaagaa agtacgggtg  
540  
caacggctgg ctgcgatgca tgccgacatg atg  
573

<210> 4042  
<211> 191  
<212> PRT

<213> Homo sapiens

<400> 4042

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Asp Leu Ile Glu Glu Arg Ala Ile Tyr Phe Asp Gly Asp Phe Gly Gln
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Ile Val Arg Tyr Gly Glu Ile Pro Ala Glu Leu Arg Ala Ala Thr
          20           25           30
Asp His Arg Gln Glu Leu Ile Glu Cys Val Ala Asn Ser Asp Glu Gln
          35           40           45
Leu Gly Glu Met Phe Leu Glu Glu Lys Ile Pro Ser Ile Ser Asp Leu
          50           55           60
Lys Leu Ala Ile Arg Arg Ala Thr Leu Lys Arg Ser Phe Thr Pro Val
          65           70           75           80
Phe Leu Gly Ser Ala Leu Lys Asn Lys Gly Val Gln Pro Leu Leu Asp
          85           90           95
Ala Val Leu Glu Tyr Leu Pro Asn Pro Ser Glu Val Gln Asn Tyr Ala
          100          105          110
Ile Leu Asn Lys Glu Asp Asp Ser Lys Glu Lys Thr Lys Ile Leu Met
          115          120          125
Asn Ser Ser Arg Asp Asn Ser His Pro Phe Val Gly Leu Ala Phe Lys
          130          135          140
Leu Glu Val Gly Arg Phe Gly Gln Leu Thr Tyr Val Arg Ser Tyr Gln
          145          150          155          160
Gly Glu Leu Lys Lys Gly Asp Thr Ile Tyr Asn Thr Arg Thr Arg Lys
          165          170          175
Lys Val Arg Leu Gln Arg Leu Ala Arg Met His Ala Asp Met Met
          180          185          190

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<210> 4043

<211> 744

<212> DNA

<213> Homo sapiens

<400> 4043

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 120
ctcccaaaaa aagacccaaa agttaaaggt gtccaatcag cagctgtaca agcttttctt
 180
aaaaggaaaag aagaggagct gagacgaaaa gccttagagg agaaaaggag aaaagaggaa
 240
ctagtgaaaa agcgaattga gctcaaaccat gacaagaaa caagagctat ggccaagagg
 300
acaaaggata atttccatgg ttacaatggg attcctattg aggaaaagtc aaagaagagg
 360
caggcaacag aaagccatac cagccaagga accgaccgag agtatgaaat ggaagaagag
 420
aatgaattcc tcgagtacaa tcacgcagag tcagagcagg agtatgagga agagcaagaa
 480
cctcccaaag ttgaaagcaa accaaaggtc tcctttaaag gtgccccacc acccatgaac
 540
ttcactgatt tactcaggct ggctgagaaa aagcagtttg aaccagtggg aatcaaggta
 600

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gtgaagaaat cagaagagcg acctatgacc gcagaagaac ttagggagcg agaattcctt  
 660  
 gaacgaaagc ataggagaaa aaaacttgag acagatggaa aactacctcc aactgtgtcc  
 720  
 aaaaaggcac ctctcggacg gaag  
 744

<210> 4044

<211> 219

<212> PRT

<213> Homo sapiens

<400> 4044

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| Met | Cys | Arg | Lys | Gly | Ile | Val | Gly | Gln | Trp | Gly | Leu | Pro | Lys | Lys | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Lys | Val | Lys | Gly | Val | Gln | Ser | Ala | Ala | Val | Gln | Ala | Phe | Leu | Lys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Lys | Glu | Glu | Glu | Leu | Arg | Arg | Lys | Ala | Leu | Glu | Glu | Lys | Arg | Arg |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Lys | Glu | Glu | Leu | Val | Lys | Lys | Arg | Ile | Glu | Leu | Lys | His | Asp | Lys | Lys |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ala | Arg | Ala | Met | Ala | Lys | Arg | Thr | Lys | Asp | Asn | Phe | His | Gly | Tyr | Asn |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Gly | Ile | Pro | Ile | Glu | Glu | Lys | Ser | Lys | Lys | Arg | Gln | Ala | Thr | Glu | Ser |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| His | Thr | Ser | Gln | Gly | Thr | Asp | Arg | Glu | Tyr | Glu | Met | Glu | Glu | Glu | Asn |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Glu | Phe | Leu | Glu | Tyr | Asn | His | Ala | Glu | Ser | Glu | Gln | Glu | Tyr | Glu | Glu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Glu | Gln | Glu | Pro | Pro | Lys | Val | Glu | Ser | Lys | Pro | Lys | Val | Ser | Leu | Lys |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gly | Ala | Pro | Pro | Pro | Met | Asn | Phe | Thr | Asp | Leu | Leu | Arg | Leu | Ala | Glu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Lys | Lys | Gln | Phe | Glu | Pro | Val | Glu | Ile | Lys | Val | Val | Lys | Lys | Ser | Glu |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Glu | Arg | Pro | Met | Thr | Ala | Glu | Glu | Leu | Arg | Glu | Arg | Glu | Phe | Leu | Glu |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Arg | Lys | His | Arg | Arg | Lys | Lys | Leu | Glu | Thr | Asp | Gly | Lys | Leu | Pro | Pro |
|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Thr | Val | Ser | Lys | Lys | Ala | Pro | Leu | Gly | Arg | Lys |     |     |     |     |     |
|     | 210 |     |     |     |     | 215 |     |     |     |     |     |     |     |     |     |

<210> 4045

<211> 2217

<212> DNA

<213> Homo sapiens

<400> 4045

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 ttttcaagga catgatgtgg aagtcttgac ttgagtaact tcaatagcac taacaacagg  
 120  
 aattgaaaaa aacttagaat tttaaagctg agaaagagtt atcgctgtga tgattttgtg  
 180

gttaatgaca ccaagctggg actggtacag aaagtcagag aacacttaca gaacttggaa  
240  
aactcagctt tcacagctga caggcataag aaaagaaaac ttttggaaaa ctcaacacta  
300  
aacagcaagt tattaanaagt aaatggaagc accactgcc a ttgtgccac aggccttcg  
360  
aatttgggga acacatgttt catgaatgcc atccttcagt cactcagtaa cattgagcag  
420  
ttttgctgtt atttcaaaga actgcccgcc gtggagttaa ggaatgggaa aacagcagga  
480  
aggcggacat accacaccag gagccaaggg gataacaatg tgtcttttgt agaagagttt  
540  
agaaagacac tctgtgcttt atggcaaggc agccagactg catttagccc agagtcctta  
600  
ttttatgttg tttggaagat tatgccaaac tttaggggct atcaacagca ggacgcccat  
660  
gaattcnatg cgctaccttt tggaccacct acacttggan acttcagggc ggtttcaacg  
720  
gtgtttcccg ctcagcaatt ctgcaggaga attctactct gtctgcaagt anacaagtgt  
780  
tgcataaatg gagcatctac tgttgtcacg gctatattcg gaggcattct ccaaatgag  
840  
gttaactgcc tcatatgtgg gacagaatct agaaagtttg atccattcct agacctttca  
900  
ttagatattc caagtcagtt cagaagtaag cgctctaaga atcaagaaaa tggaccagtt  
960  
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<211> 437

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<213> Homo sapiens

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| Lys | Lys | Leu | Arg | Ile | Leu | Lys | Leu | Arg | Lys | Ser | Tyr | Arg | Cys | Asp | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Phe | Val | Val | Asn | Asp | Thr | Lys | Leu | Gly | Leu | Val | Gln | Lys | Val | Arg | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| His | Leu | Gln | Asn | Leu | Glu | Asn | Ser | Ala | Phe | Thr | Ala | Asp | Arg | His | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Lys | Arg | Lys | Leu | Leu | Glu | Asn | Ser | Thr | Leu | Asn | Ser | Lys | Leu | Leu | Lys |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Val | Asn | Gly | Ser | Thr | Thr | Ala | Ile | Cys | Ala | Thr | Gly | Leu | Arg | Asn | Leu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gly | Asn | Thr | Cys | Phe | Met | Asn | Ala | Ile | Leu | Gln | Ser | Leu | Ser | Asn | Ile |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Glu | Gln | Phe | Cys | Cys | Tyr | Phe | Lys | Glu | Leu | Pro | Ala | Val | Glu | Leu | Arg |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn | Gly | Lys | Thr | Ala | Gly | Arg | Arg | Thr | Tyr | His | Thr | Arg | Ser | Gln | Gly |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Asp | Asn | Asn | Val | Ser | Leu | Val | Glu | Glu | Phe | Arg | Lys | Thr | Leu | Cys | Ala |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Leu | Trp | Gln | Gly | Ser | Gln | Thr | Ala | Phe | Ser | Pro | Glu | Ser | Leu | Phe | Tyr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Val | Val | Trp | Lys | Ile | Met | Pro | Asn | Phe | Arg | Gly | Tyr | Gln | Gln | Gln | Asp |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ala | His | Glu | Phe | Xaa | Ala | Leu | Pro | Phe | Gly | Pro | Pro | Thr | Leu | Gly | Xaa |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Phe | Arg | Ala | Val | Ser | Thr | Val | Phe | Pro | Ala | Gln | Gln | Phe | Cys | Arg | Arg |
|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Ile | Leu | Leu | Cys | Leu | Gln | Val | Xaa | Lys | Cys | Cys | Ile | Asn | Gly | Ala | Ser |
|     | 210 |     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |
| Thr | Val | Val | Thr | Ala | Ile | Phe | Gly | Gly | Ile | Leu | Gln | Asn | Glu | Val | Asn |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Cys | Leu | Ile | Cys | Gly | Thr | Glu | Ser | Arg | Lys | Phe | Asp | Pro | Phe | Leu | Asp |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Leu | Ser | Leu | Asp | Ile | Pro | Ser | Gln | Phe | Arg | Ser | Lys | Arg | Ser | Lys | Asn |

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<212> DNA
<213> Homo sapiens
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720

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&lt;210&gt; 4050

&lt;211&gt; 403

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4050

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Leu | Ser | Asp | Pro | Ser | Gln | Asp | Leu | Gln | Phe | Ile | Val | Ala | Gly | Asp | 1   | 5   | 10  | 15  |
| Glu | Cys | Val | Tyr | Leu | Tyr | Gln | Pro | Asp | Glu | Arg | Gly | Pro | Cys | Phe | Ala | 20  | 25  | 30  |     |
| Phe | Glu | Gly | His | Lys | Leu | Ile | Ala | His | Trp | Phe | Arg | Gly | Tyr | Leu | Ile | 35  | 40  | 45  |     |
| Ile | Val | Ser | Arg | Asp | Arg | Lys | Val | Ser | Pro | Lys | Ser | Glu | Phe | Thr | Ser | 50  | 55  | 60  |     |
| Arg | Asp | Ser | Gln | Ser | Ser | Asp | Lys | Gln | Ile | Leu | Asn | Ile | Tyr | Asp | Leu | 65  | 70  | 75  | 80  |
| Cys | Asn | Lys | Phe | Ile | Ala | Tyr | Ser | Thr | Val | Phe | Glu | Asp | Val | Val | Asp | 85  | 90  | 95  |     |
| Val | Leu | Ala | Glu | Trp | Gly | Ser | Leu | Tyr | Val | Leu | Thr | Arg | Asp | Gly | Arg | 100 | 105 | 110 |     |
| Val | His | Ala | Leu | Gln | Glu | Lys | Asp | Thr | Gln | Thr | Lys | Leu | Glu | Met | Leu | 115 | 120 | 125 |     |
| Phe | Lys | Lys | Asn | Leu | Phe | Glu | Met | Ala | Ile | Asn | Leu | Ala | Lys | Ser | Gln | 130 | 135 | 140 |     |
| His | Leu | Asp | Ser | Asp | Gly | Leu | Ala | Gln | Ile | Phe | Met | Gln | Tyr | Gly | Asp | 145 | 150 | 155 | 160 |
| His | Leu | Tyr | Ser | Lys | Gly | Asn | His | Asp | Gly | Ala | Val | Gln | Gln | Tyr | Ile | 165 | 170 | 175 |     |
| Arg | Thr | Ile | Gly | Lys | Leu | Glu | Pro | Ser | Tyr | Val | Ile | Arg | Lys | Phe | Leu | 180 | 185 | 190 |     |
| Asp | Ala | Gln | Arg | Ile | His | Asn | Leu | Thr | Ala | Tyr | Leu | Gln | Thr | Leu | His |     |     |     |     |

|                         |                     |                     |
|-------------------------|---------------------|---------------------|
| 195                     | 200                 | 205                 |
| Arg Gln Ser Leu Ala Asn | Ala Asp His Thr Thr | Leu Leu Leu Asn Cys |
| 210                     | 215                 | 220                 |
| Tyr Thr Lys Leu Lys Asp | Ser Ser Lys Leu Glu | Glu Phe Ile Lys Lys |
| 225                     | 230                 | 235                 |
| Lys Ser Glu Ser Glu Val | His Phe Asp Val Glu | Thr Ala Ile Lys Val |
| 245                     | 250                 | 255                 |
| Leu Arg Gln Ala Gly Tyr | Tyr Ser His Ala Leu | Tyr Leu Ala Glu Asn |
| 260                     | 265                 | 270                 |
| His Ala His His Glu Trp | Tyr Leu Lys Ile Gln | Leu Glu Asp Ile Lys |
| 275                     | 280                 | 285                 |
| Asn Tyr Gln Glu Ala Leu | Arg Tyr Ile Gly Lys | Leu Pro Phe Glu Gln |
| 290                     | 295                 | 300                 |
| Ala Glu Ser Asn Met Lys | Arg Tyr Gly Lys Ile | Leu Met His His Ile |
| 305                     | 310                 | 315                 |
| Pro Glu Gln Thr Thr Gln | Leu Leu Lys Gly Leu | Cys Thr Asp Tyr Arg |
| 325                     | 330                 | 335                 |
| Pro Ser Leu Glu Gly Arg | Ser Asp Arg Glu Ala | Pro Gly Cys Arg Ala |
| 340                     | 345                 | 350                 |
| Asn Ser Glu Glu Phe Ile | Pro Ile Phe Ala Asn | Asn Pro Arg Glu Leu |
| 355                     | 360                 | 365                 |
| Lys Ala Phe Leu Glu His | Met Ser Glu Val Gln | Pro Asp Ser Pro Gln |
| 370                     | 375                 | 380                 |
| Gly Ile Tyr Asp Thr Leu | Leu Glu Leu Arg Leu | Gln Asn Trp Ala His |
| 385                     | 390                 | 395                 |
| Glu Lys Asp             |                     | 400                 |

&lt;210&gt; 4051

&lt;211&gt; 1645

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4051

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&lt;210&gt; 4052

&lt;211&gt; 93

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4052

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gly | Gly | Asn | Ala | Trp | Gly | Gly | Ala | Cys | Leu | Pro | Ala | Pro | Tyr | Gly | Gly |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |
| Ala | Glu | Gly | Val | Arg | Pro | Pro | Pro | Gly | Pro | Ala | Pro | Leu | Pro | Pro | Gly |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Pro | Thr | Lys | Pro | Leu | Pro | Pro | Ala | Pro | Pro | Ser | Met | Gly | Ser | Asp | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Gly | Glu | Arg | Ser | Pro | Ser | Pro | Pro | Trp | Pro | Pro | Pro | Pro | Pro | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
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85

90

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 <213> Homo sapiens

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| Met | Glu | Pro | Gln | Asp | Ser | Ser | Leu | Glu | Ile | Cys | Val | Glu | Ser | Leu | Ser |
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| Ser | Leu | Leu | Lys | His | Glu | Asp | His | Gln | Val | Ser | Asp | Gly | Ala | Leu | Arg |
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| Ala | Pro | Leu | Ala | Lys | His | Gly | Leu | Thr | Glu | Glu | Leu | Leu | Ser | Arg | Met |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ala | Ala | Ala | Gly | Gly | Thr | Val | Ser | Gly | Pro | Ser | Ser | Ala | Cys | Lys | Pro |
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| Gly | Arg | Ser | Thr | Thr | Gly | Ala | Pro | Ser | Thr | Thr | Ala | Asp | Ser | Lys | Leu |
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| Arg | Arg | Leu | Asp | Ser | Ser | Gly | Glu | Arg | Ser | His | Arg | Gln | Leu | Ile | Asp |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
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| Gly | Ala | Phe | Glu | Val | Asn | Phe | Met | Asp | Asp | Val | Gly | Gln | Thr | Leu | Leu |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asn | Trp | Ala | Ser | Ala | Phe | Gly | Thr | Gln | Glu | Met | Val | Glu | Phe | Leu | Cys |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     | 240 |     |
| Glu | Arg | Gly | Ala | Asp | Val | Asn | Arg | Gly | Gln | Arg | Ser | Ser | Ser | Leu | His |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Tyr | Ala | Ala | Cys | Phe | Gly | Arg | Pro | Gln | Val | Ala | Lys | Thr | Leu | Leu | Arg |
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| His | Gly | Ala | Asn | Pro | Asp | Leu | Arg | Asp | Glu | Asp | Gly | Lys | Thr | Pro | Leu |
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| 885  |     |     |     |     | 890  |     |     |     |     | 895  |     |     |     |     |      |  |
| Glu  | Asn | Gly | Ile | Ile | Tyr  | Trp | Ile | Gly | Thr | Asn  | Ala | Lys | Thr | Ala | Tyr  |  |
| 900  |     |     |     |     | 905  |     |     |     |     | 910  |     |     |     |     |      |  |
| Glu  | Trp | Val | Asn | Pro | Ala  | Ala | Tyr | Gly | Leu | Val  | Val | Val | Thr | Ser | Ser  |  |
| 915  |     |     |     |     | 920  |     |     |     |     | 925  |     |     |     |     |      |  |
| Glu  | Gly | Arg | Asn | Leu | Pro  | Tyr | Gly | Arg | Leu | Glu  | Asp | Ile | Leu | Ser | Arg  |  |
| 930  |     |     |     |     | 935  |     |     |     |     | 940  |     |     |     |     |      |  |
| Asp  | Asn | Ser | Ala | Leu | Asn  | Cys | His | Ser | Asn | Asp  | Asp | Lys | Asn | Ala | Trp  |  |
| 945  |     |     |     |     | 950  |     |     |     |     | 955  |     |     |     |     | 960  |  |
| Phe  | Ala | Ile | Asp | Leu | Gly  | Leu | Trp | Val | Ile | Pro  | Ser | Ala | Tyr | Thr | Leu  |  |
| 965  |     |     |     |     | 970  |     |     |     |     | 975  |     |     |     |     |      |  |
| Arg  | His | Ala | Arg | Gly | Tyr  | Gly | Arg | Ser | Ala | Leu  | Arg | Asn | Trp | Val | Phe  |  |
| 980  |     |     |     |     | 985  |     |     |     |     | 990  |     |     |     |     |      |  |
| Gln  | Val | Ser | Lys | Asp | Gly  | Gln | Asn | Trp | Thr | Ser  | Leu | Tyr | Thr | His | Val  |  |
| 995  |     |     |     |     | 1000 |     |     |     |     | 1005 |     |     |     |     |      |  |
| Asp  | Asp | Cys | Ser | Leu | Asn  | Glu | Pro | Gly | Ser | Thr  | Ala | Thr | Trp | Pro | Leu  |  |
| 1010 |     |     |     |     | 1015 |     |     |     |     | 1020 |     |     |     |     |      |  |
| Asp  | Pro | Pro | Lys | Asp | Glu  | Lys | Gln | Gly | Trp | Arg  | His | Val | Arg | Ile | Lys  |  |
| 1025 |     |     |     |     | 1030 |     |     |     |     | 1035 |     |     |     |     | 1040 |  |
| Gln  | Met | Gly | Lys | Asn | Ala  | Ser | Gly | Gln | Thr | His  | Tyr | Leu | Ser | Leu | Ser  |  |
| 1045 |     |     |     |     | 1050 |     |     |     |     | 1055 |     |     |     |     |      |  |
| Gly  | Phe | Glu | Leu | Tyr | Gly  | Thr | Val | Asn | Gly | Val  | Cys | Glu | Asp | Gln | Leu  |  |
| 1060 |     |     |     |     | 1065 |     |     |     |     | 1070 |     |     |     |     |      |  |
| Gly  | Lys | Ala | Ala | Lys | Glu  | Ala | Glu | Ala | Asn | Leu  | Arg | Arg | Gln | Arg | Arg  |  |
| 1075 |     |     |     |     | 1080 |     |     |     |     | 1085 |     |     |     |     |      |  |
| Leu  | Val | Arg | Ser | Gln | Val  | Leu | Lys | Tyr | Met | Val  | Pro | Gly | Ala | Arg | Val  |  |
| 1090 |     |     |     |     | 1095 |     |     |     |     | 1100 |     |     |     |     |      |  |
| Ile  | Arg | Gly | Leu | Asp | Trp  | Lys | Trp | Arg | Asp | Gln  | Asp | Gly | Ser | Pro | Gln  |  |
| 1105 |     |     |     |     | 1110 |     |     |     |     | 1115 |     |     |     |     | 1120 |  |
| Gly  | Glu | Gly | Thr | Val | Thr  | Gly | Glu | Leu | His | Asn  | Gly | Trp | Ile | Asp | Val  |  |
| 1125 |     |     |     |     | 1130 |     |     |     |     | 1135 |     |     |     |     |      |  |
| Thr  | Trp | Asp | Ala | Gly | Gly  | Ser | Asn | Ser | Tyr | Arg  | Met | Gly | Ala | Glu | Gly  |  |
| 1140 |     |     |     |     | 1145 |     |     |     |     | 1150 |     |     |     |     |      |  |
| Lys  | Phe | Asp | Leu | Lys | Leu  | Ala | Pro | Gly | Tyr | Asp  | Pro | Asp | Thr | Val | Ala  |  |
| 1155 |     |     |     |     | 1160 |     |     |     |     | 1165 |     |     |     |     |      |  |
| Ser  | Pro | Lys | Pro | Val | Ser  | Ser | Thr | Val | Ser | Gly  | Thr | Thr | Gln | Ser | Trp  |  |

|   |      |      |
|---|------|------|
| 1170  | 1175 | 1180 |
| Ser Ser Leu Val Lys Asn Asn Cys Pro Asp Lys Thr Ser Ala Ala Ala |      |      |
| 1185  | 1190 | 1195 |
| Gly Ser Ser Ser Arg Lys Gly Ser Ser Ser Ser Val Cys Ser Val Ala |      | 1200 |
|   | 1205 | 1210 |
| Ser Ser Ser Asp Ile Ser Leu Gly Ser Thr Lys Thr Glu Arg Arg Ser |      | 1215 |
|   | 1220 | 1225 |
| Glu Ile Val Met Glu His Ser Ile Val Ser Gly Ala Asp Val His Glu |      | 1230 |
|   | 1235 | 1240 |
| Pro Ile Val Val Leu Ser Ser Ala Glu Asn Val Pro Gln Thr Glu Val |      | 1245 |
|   | 1250 | 1255 |
| Gly Ser Ser Ser Ser Ala Ser Thr Ser Thr Leu Thr Ala Glu Thr Gly |      | 1260 |
| 1265  | 1270 | 1275 |
| Ser Glu Asn Ala Glu Arg Lys Leu Gly Pro Asp Ser Ser Val Arg Thr |      | 1280 |
|   | 1285 | 1290 |
| Pro Gly Glu Ser Ser Ala Ile Ser Met Gly Ile Val Ser Val Ser Ser |      | 1295 |
|   | 1300 | 1305 |
| Pro Asp Val Ser Ser Val Ser Glu Leu Thr Asn Lys Glu Ala Ala Ser |      | 1310 |
|   | 1315 | 1320 |
| Gln Arg Pro Leu Ser Ser Ser Ala Ser Asn Arg Leu Ser Val Ser Ser |      | 1325 |
| 1330  | 1335 | 1340 |
| Leu Leu Ala Ala Gly Ala Pro Met Ser Ser Ser Ala Ser Val Pro Asn |      |      |
| 1345  | 1350 | 1355 |
| Leu Ser Ser Arg Glu Thr Ser Ser Leu Glu Ser Phe Val Arg Arg Val |      | 1360 |
|   | 1365 | 1370 |
| Ala Asn Ile Ala Arg Thr Asn Ala Thr Asn Asn Met Asn Leu Ser Arg |      | 1375 |
|   | 1380 | 1385 |
| Ser Ser Ser Asp Asn Asn Thr Asn Thr Leu Gly Arg Asn Val Met Ser |      | 1390 |
|   | 1395 | 1400 |
| Thr Ala Thr Ser Pro Leu Met Gly Ala Gln Ser Phe Pro Asn Leu Thr |      | 1405 |
| 1410  | 1415 | 1420 |
| Thr Pro Gly Thr Thr Ser Thr Val Thr Met Ser Thr Ser Ser Val Thr |      |      |
| 1425  | 1430 | 1435 |
| Ser Ser Ser Asn Val Ala Thr Ala Thr Thr Val Leu Ser Val Gly Gln |      | 1440 |
|   | 1445 | 1450 |
| Ser Leu Ser Asn Thr Leu Thr Thr Ser Leu Thr Ser Thr Ser Ser Glu |      | 1455 |
|   | 1460 | 1465 |
| Ser Asp Thr Gly Gln Glu Ala Glu Tyr Ser Leu Tyr Asp Phe Leu Asp |      | 1470 |
| 1475  | 1480 | 1485 |
| Ser Cys Arg Ala Ser Thr Leu Leu Ala Glu Leu Asp Asp Asp Glu Asp |      |      |
| 1490  | 1495 | 1500 |
| Leu Pro Glu Pro Asp Glu Glu Asp Asp Glu Asn Glu Asp Asp Asn Gln |      |      |
| 1505  | 1510 | 1515 |
| Glu Asp Gln Glu Tyr Glu Glu Val Met Ile Leu Arg Arg Pro Ser Leu |      | 1520 |
|   | 1525 | 1530 |
| Gln Arg Arg Ala Gly Ser Arg Ser Asp Val Thr His His Ala Val Thr |      | 1535 |
| 1540  | 1545 | 1550 |
| Ser Gln Leu Pro Gln Val Pro Ala Gly Ala Gly Ser Arg Pro Ile Gly |      |      |
| 1555  | 1560 | 1565 |
| Glu Gln Glu Glu Glu Tyr Glu Thr Lys Gly Gly Arg Arg Arg Thr     |      |      |
| 1570  | 1575 | 1580 |
| Trp Asp Asp Asp Tyr Val Leu Lys Arg Gln Phe Ser Ala Leu Val Pro |      |      |
| 1585  | 1590 | 1595 |
| Ala Phe Asp Pro Arg Pro Gly Arg Thr Asn Val Gln Gln Thr Thr Asp |      | 1600 |

3241

| 2035 |     |     |     |     | 2040 |     |     |     |     | 2045 |     |     |     |     |      |  |
|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|--|
| Gly  | Leu | Phe | Thr | Ala | Pro  | Phe | Pro | Gln | Asp | Ser  | Asp | Glu | Leu | Glu | Arg  |  |
| 2050 |     |     |     |     | 2055 |     |     |     |     | 2060 |     |     |     |     |      |  |
| Ile  | Thr | Lys | Leu | Phe | His  | Phe | Leu | Gly | Ile | Phe  | Leu | Ala | Lys | Cys | Ile  |  |
| 2065 |     |     |     |     | 2070 |     |     |     |     | 2075 |     |     |     |     | 2080 |  |
| Gln  | Asp | Asn | Arg | Leu | Val  | Asp | Leu | Pro | Ile | Ser  | Lys | Pro | Phe | Phe | Lys  |  |
| 2085 |     |     |     |     | 2090 |     |     |     |     | 2095 |     |     |     |     |      |  |
| Leu  | Met | Cys | Met | Gly | Asp  | Ile | Lys | Ser | Asn | Met  | Ser | Lys | Leu | Ile | Tyr  |  |
| 2100 |     |     |     |     | 2105 |     |     |     |     | 2110 |     |     |     |     |      |  |
| Glu  | Ser | Arg | Gly | Asp | Arg  | Asp | Leu | His | Cys | Thr  | Glu | Ser | Gln | Ser | Glu  |  |
| 2115 |     |     |     |     | 2120 |     |     |     |     | 2125 |     |     |     |     |      |  |
| Ala  | Ser | Thr | Glu | Glu | Gly  | His | Asp | Ser | Leu | Ser  | Val | Gly | Ser | Phe | Glu  |  |
| 2130 |     |     |     |     | 2135 |     |     |     |     | 2140 |     |     |     |     |      |  |
| Glu  | Asp | Ser | Lys | Ser | Glu  | Phe | Ile | Leu | Asp | Pro  | Pro | Lys | Pro | Lys | Pro  |  |
| 2145 |     |     |     |     | 2150 |     |     |     |     | 2155 |     |     |     |     | 2160 |  |
| Pro  | Ala | Trp | Leu | Asn | Gly  | Ile | Leu | Thr | Trp | Glu  | Asp | Phe | Glu | Leu | Val  |  |
| 2165 |     |     |     |     | 2170 |     |     |     |     | 2175 |     |     |     |     |      |  |
| Asn  | Pro | His | Arg | Ala | Arg  | Phe | Leu | Lys | Glu | Ile  | Lys | Asp | Leu | Ala | Ile  |  |
| 2180 |     |     |     |     | 2185 |     |     |     |     | 2190 |     |     |     |     |      |  |
| Lys  | Arg | Arg | Gln | Ile | Leu  | Ser | Asn | Lys | Gly | Leu  | Ser | Glu | Asp | Glu | Lys  |  |
| 2195 |     |     |     |     | 2200 |     |     |     |     | 2205 |     |     |     |     |      |  |
| Asn  | Thr | Lys | Leu | Gln | Glu  | Leu | Val | Leu | Lys | Asn  | Pro | Ser | Gly | Ser | Gly  |  |
| 2210 |     |     |     |     | 2215 |     |     |     |     | 2220 |     |     |     |     |      |  |
| Pro  | Pro | Leu | Ser | Ile | Glu  | Asp | Leu | Gly | Leu | Asn  | Phe | Gln | Phe | Cys | Pro  |  |
| 2225 |     |     |     |     | 2230 |     |     |     |     | 2235 |     |     |     |     | 2240 |  |
| Ser  | Ser | Arg | Ile | Tyr | Gly  | Phe | Thr | Ala | Val | Asp  | Leu | Lys | Pro | Ser | Gly  |  |
| 2245 |     |     |     |     | 2250 |     |     |     |     | 2255 |     |     |     |     |      |  |
| Glu  | Asp | Glu | Met | Ile | Thr  | Met | Asp | Asn | Ala | Glu  | Glu | Tyr | Val | Asp | Leu  |  |
| 2260 |     |     |     |     | 2265 |     |     |     |     | 2270 |     |     |     |     |      |  |
| Met  | Phe | Asp | Phe | Cys | Met  | His | Thr | Gly | Ile | Gln  | Lys | Gln | Met | Glu | Ala  |  |
| 2275 |     |     |     |     | 2280 |     |     |     |     | 2285 |     |     |     |     |      |  |
| Phe  | Arg | Asp | Gly | Phe | Asn  | Lys | Val | Phe | Pro | Met  | Glu | Lys | Leu | Ser | Ser  |  |
| 2290 |     |     |     |     | 2295 |     |     |     |     | 2300 |     |     |     |     |      |  |
| Phe  | Ser | His | Glu | Glu | Val  | Gln | Met | Ile | Leu | Cys  | Gly | Asn | Gln | Ser | Pro  |  |
| 2305 |     |     |     |     | 2310 |     |     |     |     | 2315 |     |     |     |     | 2320 |  |
| Ser  | Trp | Ala | Ala | Glu | Asp  | Ile | Ile | Asn | Tyr | Thr  | Glu | Pro | Lys | Leu | Gly  |  |
| 2325 |     |     |     |     | 2330 |     |     |     |     | 2335 |     |     |     |     |      |  |
| Tyr  | Thr | Arg | Asp | Ser | Pro  | Gly | Phe | Leu | Arg | Phe  | Val | Arg | Val | Leu | Cys  |  |
| 2340 |     |     |     |     | 2345 |     |     |     |     | 2350 |     |     |     |     |      |  |
| Gly  | Met | Ser | Ser | Asp | Glu  | Arg | Lys | Ala | Phe | Leu  | Gln | Phe | Thr | Thr | Gly  |  |
| 2355 |     |     |     |     | 2360 |     |     |     |     | 2365 |     |     |     |     |      |  |
| Cys  | Ser | Thr | Leu | Pro | Pro  | Gly | Gly | Leu | Ala | Asn  | Leu | His | Pro | Arg | Leu  |  |
| 2370 |     |     |     |     | 2375 |     |     |     |     | 2380 |     |     |     |     |      |  |
| Thr  | Val | Val | Arg | Lys | Val  | Asp | Ala | Thr | Asp | Ala  | Ser | Tyr | Pro | Ser | Val  |  |
| 2385 |     |     |     |     | 2390 |     |     |     |     | 2395 |     |     |     |     | 2400 |  |
| Asn  | Thr | Cys | Val | His | Tyr  | Leu | Lys | Leu | Pro | Glu  | Tyr | Ser | Ser | Glu | Glu  |  |
| 2405 |     |     |     |     | 2410 |     |     |     |     | 2415 |     |     |     |     |      |  |
| Ile  | Met | Arg | Glu | Arg | Leu  | Leu | Ala | Ala | Thr | Met  | Glu | Lys | Gly | Phe | His  |  |
| 2420 |     |     |     |     | 2425 |     |     |     |     | 2430 |     |     |     |     |      |  |
| Leu  |     |     |     |     | Asn  |     |     |     |     |      |     |     |     |     |      |  |

&lt;210&gt; 4057

&lt;211&gt; 533



&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4057

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533

&lt;210&gt; 4058

&lt;211&gt; 157

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4058

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Arg | Leu | His | Leu | Leu | Asp | Gln | Val | Phe | Phe | Gln | Glu | Leu | Leu | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Ala | Arg | Ser | Ser | Lys | Ala | Phe | Pro | Glu | Asp | Val | Val | Arg | Val | Ile |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Phe | Ser | Asn | Ile | Ser | Ser | Ile | Tyr | Gln | Phe | His | Ser | Gln | Phe | Phe | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Pro | Glu | Leu | Gln | Arg | Arg | Leu | Asp | Asp | Trp | Thr | Ala | Asn | Pro | Arg | Ile |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Asp | Val | Ile | Gln | Lys | Leu | Ala | Pro | Phe | Leu | Lys | Met | Tyr | Ser | Glu |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |
| Tyr | Val | Lys | Asn | Phe | Glu | Arg | Ala | Ala | Glu | Leu | Leu | Ala | Thr | Trp | Thr |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Asp | Lys | Ser | Pro | Leu | Phe | Gln | Glu | Val | Leu | Thr | Arg | Ile | Gln | Val | Arg |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Gly | Glu | Gly | Trp | Ser | Gln | His | Cys | His | Ser | Gln | His | Ala | Val | Ala |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Gln | Val | Ala | Leu | Ser | Asp | Ser | Gly | His | Leu | Pro | Gly | Ser | Ala | Ala | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ile | Gly | Pro | Cys | Leu | Leu | Val | Arg | Pro | Ser | Gly | Ala | Ala |     |     |     |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     |     |

&lt;210&gt; 4059

&lt;211&gt; 3994

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

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| Glu | Asp | Thr | Leu | Cys | Val | Arg | Gly | Gln | Arg | Gly | Leu | Glu | Glu | Arg | Ala |
|     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |     |
| Ile | Pro | Thr | Glu | Ser | Ile | Thr | Val | Asp | Ser | Pro | Ile | Ser | Ala | Gln | Asp |
|     |     | 355 |     |     |     | 360 |     |     |     |     | 365 |     |     |     |     |
| Leu | Leu | Ser | Arg | Ile | Lys | Gln | Glu | Glu | His | Gln | Cys | Val | Trp | Asp | Gln |
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| Gln Ile Tyr Lys Gly Lys Lys Lys Leu Met Met Leu Val Arg Arg Glu |     | 140 |
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| Lys Leu Lys Leu His Lys Cys Lys Gly Pro Met Arg Leu Gly Gly Ser |     |     |     | 415 |
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| Arg Ala Leu Ser Asn Leu Val Pro Lys Tyr Tyr Gly Gln Gly Ser Glu |     |     |     | 430 |
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| Ala Cys Thr Cys Asp Ser Gly Asp Tyr Lys Leu Ser Leu Ala Gly Arg |     |     |     | 445 |
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| Arg Lys Lys Xaa Leu Gln Glu Glu Xaa Tyr Lys Ala Ser Tyr Val Arg |     |     |     | 460 |
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| Asn Arg Ser Ile Arg Ser Val Ala Ile Glu Val Asp Gly Arg Val Tyr |     |     |     | 480 |
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| His Val Gly Leu Gly Asp Ala Ala Gln Pro Arg Asn Leu Thr Lys Arg |     |     |     | 495 |
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| Lys Leu Leu Lys Arg Leu Gln Asn Asn Asp Thr Cys Ser Met Pro Gly |     |     |     | 655 |
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| Glu Phe Ala Thr Gly Phe Leu Glu Tyr Phe Asp Leu Asn Thr Asp Pro |     |     |     | 720 |
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| Tyr Gln Leu Met Asn Ala Val Asn Thr Leu Asp Arg Asp Val Leu Asn |     |     |     | 735 |
|   | 740 |     | 745 |     |
| Gln Leu His Val Gln Leu Met Glu Leu Arg Ser Cys Lys Gly Tyr Lys |     |     |     | 750 |
|   | 755 |     | 760 |     |
| Gln Cys Asn Pro Arg Thr Arg Asn Met Asp Leu Gly Leu Lys Asp Gly |     |     |     | 765 |
|   | 770 |     | 775 |     |
| Gly Ser Tyr Glu Gln Tyr Arg Gln Phe Gln Arg Arg Lys Trp Pro Glu |     |     |     | 780 |
| 785   |     | 790 |     | 795 |
| Met Lys Arg Pro Ser Ser Lys Ser Leu Gly Gln Leu Trp Glu Gly Trp |     |     |     | 800 |

3254

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |
| Lys | Gly | Tyr | Glu | Glu | Asp | Val | Gly | Arg | Met | Thr | Met | Ile | Arg | Val | Val |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |
| Ser | His | Thr | Ser | Val | Pro | Leu | Leu | Leu | Lys | Asn | Pro | Asp | Tyr | Phe | Phe |  |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |
| Lys | Glu | Ala | Asn | Thr | Thr | Ile | Tyr | Val | Ile | Trp | Gly | Pro | Phe | Arg | Asn |  |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |  |
| Met | Arg | Lys | Asp | Gly | Asn | Gly | Ile | Val | Tyr | Asn | Met | Leu | Lys | Lys | Thr |  |  |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |  |  |
| Val | Gly | Ile | Tyr | Pro | Asn | Ala | Gln | Ile | Tyr | Val | Thr | Thr | Glu | Lys | Arg |  |  |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |  |
| Met | Ser | Tyr | Cys | Asp | Gly | Val | Leu | Arg | Arg | Lys | Xaa | Gly | Lys | Asp | Ser |  |  |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |  |
| Thr | Glu |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|     | 210 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |

<210> 4067  
 <211> 1800  
 <212> DNA  
 <213> Homo sapiens

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 420  
 gccgtccaat caggaagcct ggccctttct ggaggtcctt ccaatgaagg cacagtecta  
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 1800

&lt;210&gt; 4068

&lt;211&gt; 521

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4068

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asn | Ser | Ser | Thr | Pro | Ser | Thr | Ala | Asn | Gly | Asn | Asp | Ser | Lys | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Phe | Lys | Arg | Asp | Arg | Pro | Pro | Cys | Ser | Pro | Ser | Arg | Val | Leu | His | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Lys | Ile | Pro | Cys | Asp | Val | Thr | Glu | Ala | Glu | Ile | Ile | Ser | Leu | Gly |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Pro | Phe | Gly | Lys | Val | Thr | Asn | Leu | Leu | Met | Leu | Lys | Gly | Lys | Ser |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gln | Ala | Phe | Leu | Glu | Met | Ala | Ser | Glu | Glu | Ala | Ala | Val | Thr | Met | Val |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Asn | Tyr | Tyr | Thr | Pro | Ile | Thr | Pro | His | Leu | Arg | Ser | Gln | Pro | Val | Tyr |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Ile | Gln | Tyr | Ser | Asn | His | Arg | Glu | Leu | Lys | Thr | Asp | Asn | Leu | Pro | Asn |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gln | Ala | Arg | Ala | Gln | Ala | Ala | Leu | Gln | Ala | Val | Ser | Ala | Val | Gln | Ser |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Gly | Ser | Leu | Ala | Leu | Ser | Gly | Gly | Pro | Ser | Asn | Glu | Gly | Thr | Val | Leu |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Pro | Gly | Gln | Ser | Pro | Val | Leu | Arg | Ile | Ile | Ile | Glu | Asn | Leu | Phe | Tyr |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 145 |     | 150 |     | 155 |     | 160 |     |     |     |     |     |     |     |     |     |
| Pro | Val | Thr | Leu | Glu | Val | Leu | His | Gln | Ile | Phe | Ser | Lys | Phe | Gly | Thr |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Val | Leu | Lys | Ile | Ile | Thr | Phe | Thr | Lys | Asn | Asn | Gln | Phe | Gln | Ala | Leu |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |
| Leu | Gln | Tyr | Ala | Asp | Pro | Val | Asn | Ala | His | Tyr | Ala | Lys | Met | Ala | Leu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Asp | Gly | Gln | Asn | Ile | Tyr | Asn | Ala | Cys | Cys | Thr | Leu | Arg | Ile | Asp | Phe |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ser | Lys | Leu | Thr | Ser | Leu | Asn | Val | Lys | Tyr | Asn | Asn | Asp | Lys | Ser | Arg |
|     | 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Asp | Phe | Thr | Arg | Leu | Asp | Leu | Pro | Thr | Gly | Asp | Gly | Gln | Pro | Ser | Leu |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Glu | Pro | Pro | Met | Ala | Ala | Ala | Phe | Gly | Ala | Pro | Gly | Ile | Ile | Ser | Ser |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Pro | Tyr | Ala | Gly | Ala | Ala | Gly | Phe | Ala | Pro | Ala | Ile | Gly | Phe | Pro | Gln |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Ala | Thr | Gly | Leu | Ser | Val | Pro | Ala | Val | Pro | Gly | Ala | Leu | Gly | Pro | Leu |
|     | 290 |     |     |     |     | 295 |     |     |     | 300 |     |     |     |     |     |
| Thr | Ile | Thr | Ser | Ser | Ala | Val | Thr | Gly | Arg | Met | Ala | Ile | Pro | Gly | Ala |
|     | 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Ser | Gly | Ile | Pro | Gly | Asn | Ser | Val | Leu | Leu | Val | Thr | Asn | Leu | Asn | Pro |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |     |
| Asp | Leu | Ile | Thr | Pro | His | Gly | Leu | Phe | Ile | Leu | Phe | Gly | Val | Tyr | Gly |
|     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |     |
| Asp | Val | His | Arg | Val | Lys | Ile | Met | Phe | Asn | Lys | Lys | Glu | Asn | Ala | Leu |
|     | 355 |     |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Val | Gln | Met | Ala | Asp | Ala | Asn | Gln | Ala | Gln | Leu | Ala | Met | Asn | His | Leu |
|     | 370 |     |     |     |     | 375 |     |     |     | 380 |     |     |     |     |     |
| Ser | Gly | Gln | Arg | Leu | Tyr | Gly | Lys | Val | Leu | Arg | Ala | Thr | Leu | Ser | Lys |
|     | 385 |     |     |     | 390 |     |     |     | 395 |     |     |     |     | 400 |     |
| His | Gln | Ala | Val | Gln | Leu | Pro | Arg | Glu | Gly | Gln | Glu | Asp | Gln | Gly | Leu |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |     |
| Thr | Lys | Asp | Phe | Ser | Asn | Ser | Pro | Leu | His | Arg | Phe | Lys | Lys | Pro | Gly |
|     |     | 420 |     |     |     |     | 425 |     |     |     |     |     | 430 |     |     |
| Ser | Lys | Asn | Phe | Gln | Asn | Ile | Phe | Pro | Pro | Ser | Ala | Thr | Leu | His | Leu |
|     | 435 |     |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Ser | Asn | Ile | Pro | Pro | Ser | Val | Thr | Val | Asp | Asp | Leu | Lys | Asn | Leu | Phe |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Ile | Glu | Ala | Gly | Cys | Ser | Val | Lys | Ala | Phe | Lys | Phe | Phe | Gln | Lys | Asp |
|     | 465 |     |     |     | 470 |     |     |     | 475 |     |     |     |     | 480 |     |
| Arg | Lys | Met | Ala | Leu | Ile | Gln | Leu | Gly | Ser | Val | Glu | Glu | Ala | Ile | Gln |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |     |
| Ala | Leu | Ile | Glu | Leu | His | Asn | His | Asp | Leu | Gly | Glu | Asn | His | His | Leu |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Arg | Val | Ser | Phe | Ser | Lys | Ser | Thr | Ile |     |     |     |     |     |     |     |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     |     |     |     |     |

&lt;210&gt; 4069

&lt;211&gt; 714

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4069

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 180  
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 300  
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 420  
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 aagaaattct ttgtttgagg gagacttccc ctttctggat tgtatttgta gagtgttacg  
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 Leu Tyr Thr Ile Phe Ile Val Ala Thr Lys Ile Thr Met Met Thr Thr  
 35 40 45  
 Gln Thr Ser Thr Met Thr Phe Ala Pro Phe Glu Asp Thr Leu Ser Trp  
 50 55 60  
 Met Leu Phe Gly Trp Gln Gln Pro Phe Ser Ser Cys Glu Lys Lys Ser  
 65 70 75 80  
 Glu Ala Lys Ser Pro Ser Asn Gly Val Gly Ser Leu Ala Ser Lys Pro  
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 Val Asp Val Ala Ser Asp Asn Val Lys Lys Lys His Thr Lys Lys Asn  
 100 105 110  
 Glu

<210> 4071  
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<400> 4071



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 180  
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 420  
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 600  
 c  
 601

&lt;210&gt; 4072

&lt;211&gt; 175

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4072

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Val | His | Arg | Arg | Gly | Trp | Pro | Ser | Cys | Leu | Ala | Arg | Gly | Gly | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Cys | Ala | Leu | Val | Pro | Arg | Leu | Val | Arg | Met | Lys | Val | Phe | His | Leu | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Leu | Ser | Gln | Ser | Val | Val | Leu | Arg | His | His | Trp | Ile | Leu | Pro | Phe | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gln | Ala | Leu | Lys | Ala | Arg | Met | Thr | Ser | Phe | His | Arg | Phe | Phe | Phe | Thr |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ala | Asn | Gln | Val | Lys | Ile | Tyr | Thr | Asn | Gln | Glu | Lys | Thr | Arg | Thr | Phe |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ile | Gly | Leu | Glu | Val | Thr | Ser | Gly | His | Ala | Gln | Phe | Leu | Asp | Leu | Val |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ser | Glu | Val | Asp | Arg | Val | Met | Glu | Glu | Phe | Asn | Leu | Thr | Thr | Phe | Tyr |
|     |     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |
| Gln | Asp | Pro | Ser | Phe | His | Leu | Ser | Leu | Ala | Trp | Cys | Val | Gly | Asp | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Arg | Leu | Gln | Leu | Glu | Gly | Gln | Cys | Leu | Gln | Glu | Leu | Gln | Ala | Ile | Val |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asp | Gly | Phe | Glu | Asp | Ala | Glu | Val | Leu | Leu | Arg | Val | His | Thr | Glu | Gln |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Val | Arg | Cys | Lys | Ser | Gly | Asn | Lys | Phe | Phe | Ser | Met | Pro | Leu | Lys |     |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |

&lt;210&gt; 4073

&lt;211&gt; 1864

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4073

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1440  
gaaggaccag ttccctgggt ttccaaaaac agtghtaacat ttgtggctga gcaggtttcc  
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 1560  
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<210> 4074

<211> 456

<212> PRT

<213> Homo sapiens

<400> 4074

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Val | Glu | Ser | Ile | Lys | His | Cys | Ile | Val | Leu | Leu | Gln | Ile | Ala | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Asp | Gln | Ser | Asn | Ala | Glu | Lys | His | Ala | Asp | Gly | Met | Ile | Ser | Thr | Ile |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Asn | Pro | Val | Asp | Ala | Ile | Tyr | Gln | Pro | Ser | Pro | Leu | Glu | Pro | Val | Ile |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ser | Thr | Met | Pro | Ser | Gln | Thr | Val | Leu | Pro | Pro | Glu | Pro | Val | Gln | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Cys | Lys | Ser | Glu | Gln | Arg | Pro | Ser | Ser | Leu | Pro | Val | Gly | Pro | Val | Leu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ala | Thr | Leu | Gly | His | His | Gln | Thr | Pro | Thr | Pro | Asn | Ser | Thr | Gly | Ser |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Gly | His | Ser | Pro | Pro | Ser | Ser | Ser | Leu | Thr | Ser | Pro | Ser | His | Val | Asn |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Ser | Pro | Asn | Thr | Val | Pro | Glu | Phe | Ser | Tyr | Ser | Ser | Ser | Glu | Asp |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Glu | Phe | Tyr | Asp | Ala | Asp | Glu | Phe | His | Gln | Ser | Gly | Ser | Ser | Pro | Lys |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Arg | Leu | Ile | Asp | Ser | Ser | Gly | Ser | Ala | Ser | Val | Leu | Thr | His | Ser | Ser |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ser | Gly | Asn | Ser | Leu | Lys | Arg | Pro | Asp | Thr | Thr | Glu | Ser | Leu | Asn | Ser |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Ser | Leu | Ser | Asn | Gly | Thr | Ser | Asp | Ala | Asp | Leu | Phe | Asp | Ser | His | Asp |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Asp | Arg | Asp | Asp | Asp | Ala | Glu | Ala | Gly | Ser | Val | Glu | Glu | His | Lys | Ser |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Val | Ile | Met | His | Leu | Leu | Ser | Gln | Val | Arg | Leu | Gly | Met | Asp | Leu | Thr |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Lys | Val | Val | Leu | Pro | Thr | Phe | Ile | Leu | Glu | Arg | Arg | Ser | Leu | Leu | Glu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Met | Tyr | Ala | Asp | Phe | Phe | Ala | His | Pro | Asp | Leu | Phe | Val | Ser | Ile | Ser |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Asp | Gln | Lys | Asp | Pro | Lys | Asp | Arg | Met | Val | Gln | Val | Val | Lys | Trp | Tyr |

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<211> 2492
<212> DNA
<213> Homo sapiens
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3262

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 <212> PRT  
 <213> Homo sapiens

<400> 4076  
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 130 135 140  
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 Ser Thr Ala Pro Val Met Asp Leu Leu Gly Leu Asp Ala Pro Val Ala  
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 Cys Ser Ile Ala Asn Ser Lys Thr Ser Asn Thr Leu Glu Lys Asp Leu  
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 Asp Leu Leu Ala Ser Val Pro Ser Pro Ser Ser Ser Gly Ser Arg Lys  
 195 200 205  
 Val Val Gly Ser Met Pro Thr Ala Gly Ser Ala Gly Ser Val Pro Glu  
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 225 230 235 240  
 Lys Lys Gln Leu Ser Lys Asp Ser Ile Leu Ser Leu Tyr Gly Ser Gln  
 245 250 255  
 Thr Pro Gln Met Pro Thr Gln Ala Met Phe Met Ala Pro Ala Gln Met  
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 Ala Tyr Pro Thr Ala Tyr Pro Ser Phe Pro Gly Val Thr Pro Pro Asn  
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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 305 |     | 310 |     | 315 |     | 320 |     |     |     |     |     |     |     |     |     |
| Met | Gly | Gly | Met | Gln | Ala | Ser | Met | Met | Gly | Val | Pro | Asn | Gly | Met | Met |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Thr | Thr | Gln | Gln | Ala | Gly | Tyr | Met | Ala | Gly | Met | Ala | Ala | Met | Pro | Gln |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Thr | Val | Tyr | Gly | Val | Gln | Pro | Ala | Gln | Gln | Leu | Gln | Trp | Asn | Leu | Thr |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Gln | Met | Thr | Gln | Gln | Met | Ala | Gly | Met | Asn | Phe | Tyr | Gly | Ala | Asn | Gly |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Met | Met | Asn | Tyr | Gly | Gln | Ser | Met | Ser | Gly | Gly | Asn | Gly | Gln | Ala | Ala |
| 385 |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     |     | 400 |
| Asn | Gln | Thr | Leu | Ser | Pro | Gln | Met | Trp | Lys |     |     |     |     |     |     |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     |     |     |

&lt;210&gt; 4077

&lt;211&gt; 684

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4077

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 684

&lt;210&gt; 4078

&lt;211&gt; 194

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4078

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Val | Val | His | Asn | Trp | Asp | Phe | Glu | Pro | Arg | Lys | Val | Ser | Arg | Cys |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |     |
| Ser | Met | Arg | Tyr | Leu | Ala | Leu | Met | Val | Ser | Arg | Pro | Val | Leu | Arg | Leu |

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      20      25      30
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Ile Arg Lys Leu Arg Gln Asp Ile Leu Leu Met Lys Pro Tyr Phe Ile
      50      55      60
Thr Cys Arg Glu Ala Met Glu Ala Arg Leu Leu Leu Gln Leu Gln Asp
65      70      75      80
Arg Gln His Phe Val Glu Asn Asp Glu Met Tyr Ser Val Gln Asp Leu
      85      90      95
Leu Asp Val His Ala Gly Arg Leu Gly Cys Ser Leu Thr Glu Ile His
      100      105      110
Thr Leu Phe Ala Lys His Ile Lys Leu Asp Cys Glu Arg Cys Gln Ala
      115      120      125
Lys Gly Phe Val Cys Glu Leu Cys Arg Glu Gly Asp Val Leu Phe Pro
      130      135      140
Phe Asp Ser His Thr Ser Val Cys Ala Asp Cys Ser Ala Val Phe His
145      150      155      160
Arg Asp Cys Tyr Tyr Asp Asn Ser Thr Thr Cys Pro Lys Cys Ala Arg
      165      170      175
Leu Ser Leu Arg Lys Gln Ser Leu Phe Gln Glu Pro Gly Pro Asp Val
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Glu Ala

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&lt;210&gt; 4079

&lt;211&gt; 783

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4079

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nta

783

<210> 4080

<211> 101

<212> PRT

<213> Homo sapiens

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| Met | Pro | Ala | Gln | Asn | Arg | Arg | Glu | Tyr | Gly | Thr | Pro | Ala | Leu | Gly | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ile | Cys | Lys | Glu | Arg | Arg | Leu | Cys | Arg | Trp | Glu | Leu | Phe | Thr | Gln | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Thr | Pro | Ser | Val | Cys | Leu | Pro | Ser | Lys | Leu | His | Cys | Pro | Asn | Arg |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |
| Glu | Ala | Leu | His | Ala | Gln | Pro | Gly | Glu | Gln | Gly | Trp | Met | Gly | Leu | Lys |
|     |     |     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |
| Arg | Ala | Gln | Pro | Ser | Pro | Glu | Arg | Thr | Leu | His | Ser | Asn | Leu | Pro | Gln |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ser | Trp | Gly | Lys | His | Glu | Gly | Cys | Pro | Ser | Thr | Glu | Val | Asn | Pro | Gly |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| His | Ala | Arg | Thr | Lys |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 100 |     |     |     |     |     |     |     |     |     |     |     |

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<211> 645

<212> DNA

<213> Homo sapiens

<400> 4081

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 <213> Homo sapiens

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 Phe Ala Gly Val Thr Thr His Gln Glu Leu Phe Pro His Ser Leu Leu  
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 Tyr Thr Gly Tyr Asp Met Glu Asp Ala Met Ile Val Asn Lys Ala Ser  
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 Trp Glu Arg Gly Phe Ala His Gly Ser Val Tyr Lys Ser Glu Phe Ile  
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<210> 4083  
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 <213> Homo sapiens

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 360

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&lt;210&gt; 4084

&lt;211&gt; 362

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4084

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Asp | Gln | Gln | Val | Val | Ile | Asn | Tyr | Ser | Ile | Val | Lys | Gly | Leu | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Tyr | Asn | Gln | Ala | Thr | Pro | Thr | Phe | His | Gln | Trp | Arg | Asp | Ala | Arg | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Val | Tyr | Gly | Leu | Asn | Phe | Ala | Ser | Lys | Glu | Glu | Ala | Thr | Thr | Phe | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asn | Ala | Met | Leu | Phe | Ala | Leu | Asn | Ile | Met | Asn | Ser | Gln | Glu | Gly | Gly |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Pro | Ser | Ser | Gln | Arg | Gln | Val | Gln | Asn | Gly | Pro | Ser | Pro | Asp | Glu | Met |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Asp | Ile | Gln | Arg | Arg | Gln | Val | Met | Glu | Gln | His | Gln | Gln | Gln | Arg | Gln |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Glu | Ser | Leu | Glu | Arg | Arg | Thr | Ser | Ala | Thr | Gly | Pro | Ile | Leu | Pro | Pro |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |
| Gly | His | Pro | Ser | Ser | Ala | Ala | Ser | Ala | Pro | Val | Ser | Cys | Ser | Gly | Pro |  |  |
|     |     | 115 |     |     |     |     |     | 120 |     |     |     | 125 |     |     |     |  |  |
| Pro | Pro | Pro | Pro | Pro | Pro | Pro | Val | Pro | Pro | Pro | Pro | Thr | Gly | Ala | Thr |  |  |
|     |     | 130 |     |     |     |     |     | 135 |     |     |     | 140 |     |     |     |  |  |
| Pro | Pro | Pro | Pro | Pro | Pro | Leu | Pro | Ala | Gly | Gly | Ala | Gln | Gly | Ser | Ser |  |  |
| 145 |     |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |  |  |
| His | Asp | Glu | Ser | Ser | Met | Ser | Gly | Leu | Ala | Ala | Ala | Ile | Ala | Gly | Ala |  |  |
|     |     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |  |  |
| Lys | Leu | Arg | Arg | Val | Gln | Arg | Pro | Glu | Asp | Ala | Ser | Gly | Gly | Ser | Ser |  |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |  |  |
| Pro | Ser | Gly | Thr | Ser | Lys | Ser | Asp | Ala | Asn | Arg | Ala | Ser | Ser | Gly | Gly |  |  |
|     |     | 195 |     |     |     |     |     | 200 |     |     |     | 205 |     |     |     |  |  |
| Gly | Gly | Gly | Gly | Leu | Met | Glu | Glu | Met | Asn | Lys | Leu | Leu | Ala | Lys | Arg |  |  |
|     |     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |  |  |
| Arg | Lys | Ala | Ala | Ser | Gln | Ser | Asp | Lys | Pro | Ala | Glu | Lys | Lys | Glu | Asp |  |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |  |
| Glu | Ser | Gln | Met | Glu | Asp | Pro | Ser | Thr | Ser | Pro | Ser | Pro | Gly | Thr | Arg |  |  |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |  |  |
| Ala | Ala | Ser | Gln | Pro | Pro | Asn | Ser | Ser | Glu | Ala | Gly | Arg | Lys | Pro | Trp |  |  |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |  |
| Glu | Arg | Ser | Asn | Ser | Val | Glu | Lys | Pro | Val | Ser | Ser | Ile | Leu | Ser | Arg |  |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |  |
| Thr | Pro | Ser | Val | Ala | Lys | Ser | Pro | Glu | Ala | Lys | Ser | Pro | Leu | Gln | Ser |  |  |
|     |     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |  |
| Gln | Pro | His | Ser | Arg | Met | Lys | Pro | Ala | Gly | Ser | Val | Asn | Asp | Met | Ala |  |  |
| 305 |     |     |     |     | 310 |     |     |     | 315 |     |     |     |     | 320 |     |  |  |
| Leu | Asp | Ala | Phe | Asp | Leu | Asp | Arg | Met | Lys | Gln | Glu | Ile | Leu | Glu | Glu |  |  |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |  |  |
| Val | Val | Arg | Glu | Leu | His | Lys | Val | Lys | Glu | Glu | Ile | Ile | Asp | Ala | Ile |  |  |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     | 350 |     |     |     |  |  |
| Arg | Gln | Glu | Leu | Ser | Gly | Ile | Ser | Thr | Thr |     |     |     |     |     |     |  |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     |     |     |     |     |  |  |

&lt;210&gt; 4085

&lt;211&gt; 2673

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4085

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<210> 4086

<211> 789

<212> PRT

<213> Homo sapiens

<400> 4086

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| Gly | Phe | Asn | Thr | Ser | Gln | Gly | Lys | Leu | Leu | Arg | Thr | Ile | Phe | Phe | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Val | Lys | Arg | Val | Thr | Ala | Asn | Asn | Leu | Glu | Thr | Phe | Ile | Phe | Ile | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Phe | Leu | Leu | Val | Phe | Ala | Ile | Ala | Ala | Ala | Tyr | Val | Trp | Ile | Glu |     |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gly | Thr | Lys | Asp | Pro | Ser | Arg | Asn | Arg | Tyr | Lys | Leu | Phe | Leu | Glu | Cys |
|     |     |     | 50  |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Thr | Leu | Ile | Leu | Thr | Ser | Val | Val | Pro | Pro | Glu | Leu | Pro | Ile | Glu | Leu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ser | Leu | Ala | Val | Asn | Thr | Ser | Leu | Ile | Ala | Leu | Ala | Lys | Leu | Tyr | Met |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Tyr | Cys | Thr | Glu | Pro | Phe | Arg | Ile | Pro | Phe | Ala | Gly | Lys | Val | Glu | Val |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Cys | Cys | Phe | Asp | Lys | Thr | Gly | Thr | Leu | Thr | Ser | Asp | Ser | Leu | Val | Val |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     | 125 |     |     |     |
| Arg | Gly | Val | Ala | Gly | Leu | Arg | Asp | Gly | Lys | Glu | Val | Thr | Pro | Val | Ser |
|     |     |     | 130 |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Ile | Pro | Val | Glu | Thr | His | Arg | Ala | Leu | Ala | Ser | Cys | His | Ser | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Met | Gln | Leu | Asp | Asp | Gly | Thr | Leu | Val | Gly | Asp | Pro | Leu | Glu | Lys | Ala |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Met | Leu | Thr | Ala | Val | Asp | Trp | Thr | Leu | Thr | Lys | Asp | Glu | Lys | Val | Phe |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Pro | Arg | Ser | Ile | Lys | Thr | Gln | Gly | Leu | Lys | Ile | His | Gln | Arg | Phe | His |

|   |     |     |
|---|-----|-----|
| 195   | 200 | 205 |
| Phe Ala Ser Ala Leu Lys Arg Met Ser Val Leu Ala Ser Tyr Glu Lys |     |     |
| 210   | 215 | 220 |
| Leu Gly Ser Thr Asp Leu Cys Tyr Ile Ala Ala Val Lys Gly Ala Pro |     |     |
| 225   | 230 | 235 |
| Glu Thr Leu His Ser Met Phe Ser Gln Cys Pro Pro Asp Tyr His His |     | 240 |
|   | 245 | 250 |
| Ile His Thr Glu Ile Ser Arg Glu Gly Ala Arg Val Leu Ala Leu Gly |     | 255 |
|   | 260 | 265 |
| Tyr Lys Glu Leu Gly His Leu Thr His Gln Gln Ala Arg Glu Val Lys |     | 270 |
|   | 275 | 280 |
| Arg Glu Ala Leu Glu Cys Ser Leu Lys Phe Val Gly Phe Ile Val Val |     | 285 |
|   | 290 | 295 |
| Ser Cys Pro Leu Lys Ala Asp Ser Lys Ala Val Ile Arg Glu Ile Gln |     | 300 |
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| Asn Ala Ser His Arg Val Val Met Ile Thr Gly Asp Asn Pro Leu Thr |     | 320 |
|   | 325 | 330 |
| Ala Cys His Val Ala Gln Glu Leu His Phe Ile Glu Lys Ala His Thr |     | 335 |
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| Leu Ile Leu Gln Pro Pro Ser Glu Lys Gly Arg Gln Cys Glu Trp Arg |     | 350 |
|   | 355 | 360 |
| Ser Ile Asp Gly Ser Ile Val Leu Pro Leu Xaa Pro Gly Ala Pro Gln |     | 365 |
|   | 370 | 375 |
| Arg His Trp Pro Trp Ser Thr His Xaa Cys Leu Thr Gly Asp Gly Leu |     | 380 |
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| Ala His Leu Gln Ala Thr Asp Pro Gln Gln Leu Leu Arg Leu Ile Pro |     | 400 |
|   | 405 | 410 |
| His Val Gln Val Phe Ala Arg Val Ala Pro Lys Gln Lys Glu Phe Val |     | 415 |
|   | 420 | 425 |
| Ile Thr Ser Leu Lys Glu Leu Gly Tyr Val Thr Leu Met Cys Gly Asp |     | 430 |
|   | 435 | 440 |
| Gly Thr Asn Asp Val Gly Ala Leu Lys His Ala Asp Val Gly Val Ala |     | 445 |
|   | 450 | 455 |
| Leu Leu Ala Asn Ala Pro Glu Arg Val Val Glu Arg Arg Arg Arg Pro |     | 460 |
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| Thr Ala Lys Gln Arg Ser Gly Leu Pro Pro Ser Glu Glu Gln Pro Thr |     | 495 |
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|   | 580 | 585 |
| Gly Val Lys Phe Ser Asp Phe Gln Ala Thr Leu Gln Gly Leu Leu Leu |     | 590 |
|   | 595 | 600 |
| Ala Gly Cys Phe Leu Phe Ile Ser Arg Ser Lys Pro Leu Lys Thr Leu |     | 605 |
|   | 610 | 615 |
| Ser Arg Glu Arg Pro Leu Pro Asn Ile Phe Asn Leu Tyr Thr Ile Leu |     | 620 |



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Tyr Arg Glu Ala Gln Ala Arg Ser Pro Xaa Arg Xaa Gln Glu Gln Phe
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Val Asp Leu Tyr Lys Glu Phe Glu Pro Ser Leu Val Asn Ser Thr Val
          675          680          685
Tyr Ile Met Ala Met Ala Met Gln Met Ala Thr Phe Ala Ile Asn Tyr
          690          695          700
Lys Gly Pro Pro Phe Met Glu Ser Leu Pro Glu Asn Lys Pro Leu Val
705          710          715          720
Trp Ser Leu Ala Val Ser Leu Leu Ala Ile Ile Gly Leu Leu Leu Gly
          725          730          735
Ser Ser Pro Asp Phe Asn Ser Gln Phe Gly Leu Val Asp Ile Pro Val
          740          745          750
Glu Phe Lys Leu Val Ile Ala Gln Val Leu Leu Leu Asp Phe Cys Leu
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Leu Lys Val Pro Ser
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&lt;210&gt; 4087

&lt;211&gt; 959

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4087

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<211> 319

<212> PRT

<213> Homo sapiens

<400> 4088

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| Arg | Gly | Ser | Leu | Glu | Lys | Ala | Leu | Phe | Gln | Leu | Leu | Lys | Val | Trp | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Trp | Ala | Glu | Gln | Thr | Arg | Arg | Leu | Gln | Arg | Leu | Asp | Val | Ser | Leu |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | Val | Ala | Arg | Val | Arg | Ser | Ala | Gly | Pro | Ser | Cys | Gln | Asn | Lys | Gly |
|     | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp | Leu | Val | Met | Glu | Ala | Leu | Leu | Glu | Gly | Ile | Gln | Asn | Arg | Gly | His |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Gly | Gly | Phe | Leu | Thr | Ser | Cys | Glu | Ala | Glu | Leu | Gln | Glu | Leu | Met |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Lys | Gln | Ile | Asp | Ile | Met | Val | Ala | His | Lys | Lys | Ser | Glu | Trp | Glu | Gly |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Arg | Thr | His | Ala | Leu | Glu | Thr | Cys | Leu | Lys | Ile | Arg | Glu | Gln | Glu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Lys | Ser | Leu | Arg | Ser | Gln | Leu | Asp | Val | Thr | His | Lys | Glu | Val | Gly | Met |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Leu | His | Gln | Gln | Val | Glu | Glu | His | Glu | Lys | Ile | Lys | Gln | Glu | Met | Thr |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Met | Glu | Tyr | Lys | Gln | Glu | Leu | Lys | Lys | Leu | His | Glu | Glu | Leu | Cys | Ile |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |
| Leu | Lys | Arg | Ser | Tyr | Glu | Lys | Leu | Gln | Lys | Lys | Gln | Met | Arg | Glu | Phe |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Arg | Gly | Asn | Thr | Lys | Asn | His | Arg | Glu | Asp | Arg | Ser | Glu | Ile | Glu | Arg |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Leu | Thr | Ala | Lys | Ile | Glu | Glu | Phe | Arg | Gln | Lys | Ser | Leu | Asp | Trp | Glu |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Lys | Gln | Arg | Leu | Ile | Tyr | Gln | Gln | Gln | Val | Ser | Ser | Leu | Glu | Ala | Gln |
|     | 210 |     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |
| Arg | Lys | Ala | Leu | Ala | Glu | Gln | Ser | Glu | Ile | Ile | Gln | Ala | Gln | Leu | Val |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     | 240 |     |
| Asn | Arg | Lys | Gln | Lys | Leu | Glu | Ser | Val | Glu | Leu | Ser | Ser | Gln | Ser | Glu |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |     |
| Ile | Gln | His | Leu | Ser | Ser | Lys | Leu | Glu | Arg | Ala | Asn | Asp | Thr | Ile | Cys |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ala | Asn | Glu | Leu | Glu | Ile | Glu | Arg | Leu | Thr | Met | Arg | Val | Asn | Asp | Leu |
|     | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Val | Gly | Thr | Ser | Met | Thr | Val | Leu | Gln | Glu | Gln | Gln | Gln | Lys | Glu | Glu |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Lys | Leu | Arg | Glu | Ser | Glu | Lys | Leu | Leu | Glu | Ala | Leu | Gln | Glu | Lys |     |
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<210> 4089  
 <211> 511  
 <212> DNA  
 <213> Homo sapiens

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 120  
 aaccctgtgg ggctggcccc tacacagttt ttaaggggta caggggaagg aagaaacagg  
 180  
 caccatgtgg ggcagggggt ctgcttctat catatttcca ttttggtggt ttaggagatc  
 240  
 cttccaactc tcactaacat tattttccag agaacaaaag aaaaactatg ctctccaaga  
 300  
 acatgtttcc tttgtaattt ttctgtcttc aaactttttc tggagagatg agtcatttga  
 360  
 cctgacattg agaataggct tgaagccctt tgagaggaca aaggagatag agtcagcatt  
 420  
 cctatctcca tgctctgaag atccaagtca cttgggttact gctccctggg ctgtctattt  
 480  
 tcactgttta tggaagatag agtacacctg t  
 511

<210> 4090  
 <211> 109  
 <212> PRT  
 <213> Homo sapiens

<400> 4090  
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 20 25 30  
 Lys Asn Tyr Ala Leu Gln Glu His Val Ser Phe Val Ile Phe Leu Ser  
 35 40 45  
 Ser Asn Phe Phe Trp Arg Asp Glu Ser Phe Asp Leu Thr Leu Arg Ile  
 50 55 60  
 Gly Leu Lys Pro Phe Glu Arg Thr Lys Glu Ile Glu Ser Ala Phe Leu  
 65 70 75 80  
 Ser Pro Cys Ser Glu Asp Pro Ser His Leu Val Thr Ala Pro Trp Ala  
 85 90 95  
 Val Tyr Phe His Cys Leu Trp Lys Ile Glu Tyr Thr Cys  
 100 105

<210> 4091  
 <211> 1526  
 <212> DNA  
 <213> Homo sapiens

<400> 4091  
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120  
caaggaaggg cccccgggag ctctatatgg aggaaggagc ccagaatggg gtgcaccagg  
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240  
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360  
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420  
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480  
atccctgaat aaccacagga gaacagttcc aggcctgat aagtcagcta ttgcaagggg  
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gacctggctg gaagatatga aggaaaaata tcattcttga actaataagt tgagagatca  
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720  
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780  
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840  
agatgctgtg tggcagatgg atgtggactc caactgtgac aatccagaag gccttgggga  
900  
cttgtttcat gaacagctcc ctgtaggac tctgttgggg tgggggattc taggggcatc  
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1020  
tgcagtcccc tcccagggt ggctagcagt attgttgggt accgtaagca cttagcattg  
1080  
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1140  
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ggtctcaaga gccacaattc tagacttcta ggatgtcagg agccatgctc ttaagcttct  
1260  
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1320  
cataaaaaag tgaaataaat gactcacatg gagatttggg aggatattcac tgtggaaagt  
1380  
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1440  
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1526

<210> 4092  
<211> 146  
<212> PRT

<213> Homo sapiens

<400> 4092

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Ser Gly Ala Glu Val Pro Ser Gly Ser Gly Arg Ala Thr Gly Cys Glu
 20           25           30
Arg Gly Gly Val Arg Gly Ala Arg Gln Gly Arg Ala Pro Gly Ser Ser
 35           40           45
Ile Trp Arg Lys Glu Pro Arg Met Val Cys Thr Arg Lys Thr Lys Thr
 50           55           60
Leu Val Ser Thr Cys Val Ile Leu Ser Gly Met Thr Asn Ile Ile Cys
 65           70           75           80
Leu Leu Tyr Val Gly Trp Val Thr Asn Tyr Ile Ala Ser Val Tyr Val
 85           90           95
Arg Gly Gln Glu Pro Ala Pro Asp Lys Lys Leu Glu Glu Asp Lys Gly
100           105           110
Asp Thr Leu Lys Ile Ile Glu Arg Leu Asp His Leu Glu Asn Val Ile
115           120           125
Lys Gln His Ile Gln Gly Tyr Arg Arg Asn Phe Ser Leu Leu Asn Val
130           135           140
Ser Asn
145

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<210> 4093

<211> 1519

<212> DNA

<213> Homo sapiens

<400> 4093

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120
gaggaaaaga ggccggggcg cgctgggggg tgagagcatg agggaggccg gggggggctg
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cttgagcgc tgctaggag cggtgccgcc gcacaccgc ctgggcgcgg cggagggcgg
240
ggagcgggca ggtcgcgcct cggcgagcgc accgccggga gctgttctga tttccgacgc
300
gcacctaggg gcccgagca gccccgcgc cggcgcgccg ccgacatggg caacgcaggg
360
agcatggatt cgcagcagac cgatttcagg gcgcacaacg tgcctttgaa gctgccgatg
420
ccagagccag gtgaactgga ggagcgattt gccatcgtgc tgaacgctat gaacctacct
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gatcaggaac gattccaggt gaagaatcct cccatacat acattcaaaa gctcaaaggc
600
tatctggatc cagctgtaac caggaagaaa ttcagacggc gtgttcaaga atctacacaa
660
gtgctaagag aactggaaat ttctttaaga actaaccaca ttggatgggt cagagaattt
720

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ctgaatgaag aaaacaaagg tcttgatgtt ctagtggaat atctctcatt tgcacagtac  
 780  
 gcggtaactt ttgactttga aagtgtggag agtactgtgg agagctcggt ggacaaatca  
 840  
 aagccctgga gtaggtccat cgaggacctg cacagaggga gcaacctgcc ctcacctgtg  
 900  
 ggcaacagtg tctcccgtc tggaagacat tctgcactgc gatataatac attgccaagc  
 960  
 agaagaactc tgaaaaattc aagattagt agtaagaaag atgatgtgca tgtctgtatc  
 1020  
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 1080  
 cacgtgtca atgagattgc actaagcctg aacaacaaga atcccagaac aaaagccctt  
 1140  
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&lt;210&gt; 4094

&lt;211&gt; 391

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4094

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Asn | Ala | Gly | Ser | Met | Asp | Ser | Gln | Gln | Thr | Asp | Phe | Arg | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| His | Asn | Val | Pro | Leu | Lys | Leu | Pro | Met | Pro | Glu | Pro | Gly | Glu | Leu | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Arg | Phe | Ala | Ile | Val | Leu | Asn | Ala | Met | Asn | Leu | Pro | Pro | Asp | Lys |
|     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |     |
| Ala | Arg | Leu | Leu | Arg | Gln | Tyr | Asp | Asn | Glu | Lys | Lys | Trp | Glu | Leu | Ile |
|     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |     |
| Cys | Asp | Gln | Glu | Arg | Phe | Gln | Val | Lys | Asn | Pro | Pro | His | Thr | Tyr | Ile |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |
| Gln | Lys | Leu | Lys | Gly | Tyr | Leu | Asp | Pro | Ala | Val | Thr | Arg | Lys | Lys | Phe |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Arg | Arg | Arg | Val | Gln | Glu | Ser | Thr | Gln | Val | Leu | Arg | Glu | Leu | Glu | Ile |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Leu | Arg | Thr | Asn | His | Ile | Gly | Trp | Val | Arg | Glu | Phe | Leu | Asn | Glu |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Glu | Asn | Lys | Gly | Leu | Asp | Val | Leu | Val | Glu | Tyr | Leu | Ser | Phe | Ala | Gln |
|     | 130 |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |     |
| Tyr | Ala | Val | Thr | Phe | Asp | Phe | Glu | Ser | Val | Glu | Ser | Thr | Val | Glu | Ser |

|     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|
| 145 |     | 150 |     | 155 |     | 160 |
| Ser | Val | Asp | Lys | Ser | Lys | Pro |
|     |     | 165 |     | 170 |     | 175 |
| Arg | Gly | Ser | Asn | Leu | Pro | Ser |
|     |     | 180 |     | 185 |     | 190 |
| Gly | Arg | His | Ser | Ala | Leu | Arg |
|     |     | 195 |     | 200 |     | 205 |
| Leu | Lys | Asn | Ser | Arg | Leu | Val |
|     |     | 210 |     | 215 |     | 220 |
| Ile | Met | Cys | Leu | Arg | Ala | Ile |
|     |     | 225 |     | 230 |     | 235 |
| Val | Met | Ser | His | Pro | His | Ala |
|     |     |     |     | 245 |     | 250 |
| Asn | Lys | Asn | Pro | Arg | Thr | Lys |
|     |     |     |     | 260 |     | 265 |
| Val | Cys | Leu | Val | Arg | Gly | Gly |
|     |     | 275 |     | 280 |     | 285 |
| Asn | Phe | Lys | Glu | Val | Cys | Gly |
|     |     | 290 |     | 295 |     | 300 |
| Glu | His | Phe | Arg | Asn | Glu | Asp |
|     |     | 305 |     | 310 |     | 315 |
| Met | Gln | Phe | Ile | Asn | Ile | Val |
|     |     |     |     | 325 |     | 330 |
| Arg | Val | His | Leu | Gln | Tyr | Glu |
|     |     |     |     | 340 |     | 345 |
| Leu | Asp | Lys | Leu | Lys | His | Thr |
|     |     | 355 |     | 360 |     | 365 |
| Gln | Ala | Tyr | Leu | Asp | Asn | Val |
|     |     | 370 |     | 375 |     | 380 |
| Ala | Glu | Thr | Lys | Asn | Ala | Ala |
|     |     | 385 |     | 390 |     |     |

&lt;210&gt; 4095

&lt;211&gt; 253

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4095

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120agagagatca agtagcatcc ccagcgaaat ctgaggcctc tggaggcgcc tgtgcacgtg  
180tgtctggaag tgtgtgtcca ggcagcatat ctgcatgtgt gtgcctgtcc agacagcata  
240

tctgtgcacg cgt

253

&lt;210&gt; 4096

&lt;211&gt; 83

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4096

Met Gly Gly Gly Glu Gln Ala Ser Ala Gly Arg Val Pro Lys Arg Gln  
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 Pro Arg Glu Gln Gly Gln Ile Val Gly Gly Gly Phe Ser Ser Thr Val  
 20 25 30  
 Gln Val Arg Lys Leu Arg Leu Lys Arg Asp Gln Val Ala Ser Pro Ala  
 35 40 45  
 Lys Ser Glu Ala Ser Gly Gly Ala Cys Ala Arg Val Ser Gly Ser Val  
 50 55 60  
 Cys Pro Gly Ser Ile Ser Ala Cys Val Cys Leu Ser Arg Gln His Ile  
 65 70 75 80  
 Cys Ala Arg

&lt;210&gt; 4097

&lt;211&gt; 1385

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4097

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 240  
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 1020



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 1260  
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 1385

<210> 4098

<211> 258

<212> PRT

<213> Homo sapiens

<400> 4098

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Gly | Ala | Arg | Ser | Pro | Glu | Pro | Arg | Ala | Gly | Gln | Pro | Pro | Gly | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Pro | Arg | Ala | Leu | Gly | Arg | Val | Pro | Arg | Thr | Gly | Thr | Ala | Gly | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Ala | Arg | Leu | His | Asp | Ser | Leu | Arg | Ala | Val | Leu | Thr | Cys | Ser | Thr |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Met | Ser | Ala | Lys | Ser | Ala | Ile | Ser | Lys | Glu | Ile | Phe | Ala | Pro | Leu | Asp |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Arg | Met | Leu | Gly | Ala | Val | Gln | Val | Lys | Arg | Arg | Thr | Lys | Lys | Lys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ile | Pro | Phe | Leu | Ala | Thr | Gly | Gly | Gln | Gly | Glu | Tyr | Leu | Thr | Tyr | Ile |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Cys | Leu | Ser | Val | Thr | Asn | Lys | Lys | Pro | Thr | Gln | Ala | Ser | Ile | Thr | Lys |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Val | Lys | Gln | Phe | Glu | Gly | Ser | Thr | Ser | Phe | Val | Arg | Arg | Ser | Gln | Trp |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Met | Leu | Glu | Gln | Leu | Arg | Gln | Val | Asn | Gly | Ile | Asp | Pro | Asn | Gly | Asp |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Ala | Glu | Phe | Asp | Leu | Leu | Phe | Glu | Asn | Ala | Phe | Asp | Gln | Trp | Val |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Ala | Ser | Thr | Ala | Ser | Glu | Lys | Cys | Thr | Phe | Phe | Gln | Ile | Leu | His | His |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Thr | Cys | Gln | Arg | Tyr | Leu | Thr | Asp | Arg | Lys | Pro | Glu | Phe | Ile | Asn | Cys |
|     |     |     | 180 |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Gln | Ser | Lys | Ile | Met | Gly | Gly | Asn | Ser | Ile | Leu | His | Ser | Ala | Ala | Asp |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Ser | Val | Thr | Ser | Ala | Val | Gln | Lys | Ala | Ser | Gln | Ala | Leu | Asn | Glu | Arg |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gly | Glu | Arg | Leu | Gly | Arg | Ala | Glu | Glu | Lys | Thr | Glu | Asp | Leu | Lys | Asn |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Ser | Ala | Gln | Gln | Phe | Ala | Glu | Thr | Ala | His | Lys | Leu | Ala | Met | Lys | His |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |

Lys Cys

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 <212> DNA  
 <213> Homo sapiens

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 Gln Ala Thr Gly Val Ile Ser Cys Val Ala Ser Arg Ile Cys Leu Ile  
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&lt;210&gt; 4102

&lt;211&gt; 106

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4102

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Cys | Leu | Leu | Ser | Trp | Thr | Arg | Ile | Ala | Val | Trp | Gly | Pro | Ser | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Val | Cys | Thr | Arg | Tyr | Lys | Ile | Gln | Glu | Arg | Trp | His | Thr | Ala | Asp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asp | Asp | Arg | Lys | Asp | Thr | Cys | Ser | Pro | Pro | Phe | Pro | Gly | Pro | Arg | His |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Gln | Asn | Ser | Ser | Trp | Gly | Leu | Gln | Leu | Leu | Gly | Glu | Thr | Gln | Gly |
|     |     |     | 50  |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Leu | Leu | Leu | His | Ser | Leu | Gln | Gly | Leu | Ser | Arg | Gln | Arg | Pro | Trp | Gly |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gly | Glu | Ala | Pro | Ala | Trp | Ser | Leu | Pro | Ala | Pro | Pro | Met | Gln | Ala | Val |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Glu | Gly | Arg | Thr | Arg | Arg | Arg | Thr | Arg | Arg |     |     |     |     |     |     |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     |     |     |

&lt;210&gt; 4103

&lt;211&gt; 3040

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4103

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&lt;210&gt; 4104

&lt;211&gt; 978

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4104

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Ala | Phe | Pro | Thr | Glu | Asp | Ser | Arg | Thr | Ser | Lys | Glu | Ser | Met |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Ser | Glu | Ala | Asp | Arg | Ala | Gln | Lys | Met | Asp | Gly | Glu | Ser | Glu | Glu | Glu |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gln | Glu | Ser | Val | Asp | Thr | Gly | Glu | Glu | Glu | Gly | Gly | Asp | Glu | Ser |     |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp | Leu | Ser | Ser | Glu | Ser | Ser | Ile | Lys | Lys | Lys | Ser | Gln | Glu | Glu | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Lys | Asp | Arg | Gln | Ser | Leu | Asp | Lys | Pro | Ala | Arg | Lys | Arg | Arg | Arg | Arg |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ser | Arg | Lys | Lys | Pro | Ser | Gly | Ala | Leu | Gly | Ser | Glu | Ser | Tyr | Lys | Ser |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ser | Ala | Gly | Ser | Ala | Glu | Gln | Thr | Ala | Pro | Gly | Asp | Ser | Thr | Gly | Tyr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |
| Met | Glu | Val | Ser | Leu | Asp | Ser | Leu | Asp | Leu | Arg | Val | Lys | Gly | Ile | Leu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |
| Ser | Ser | Gln | Ala | Glu | Gly | Leu | Ala | Asn | Gly | Pro | Asp | Val | Leu | Glu | Thr |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asp | Gly | Leu | Gln | Glu | Val | Pro | Leu | Cys | Ser | Cys | Arg | Met | Glu | Thr | Pro |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Lys | Ser | Arg | Glu | Ile | Thr | Thr | Leu | Ala | Asn | Asn | Gln | Cys | Met | Ala | Thr |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Glu | Ser | Val | Asp | His | Glu | Leu | Gly | Arg | Cys | Thr | Asn | Ser | Val | Val | Lys |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Tyr | Glu | Leu | Met | Arg | Pro | Ser | Asn | Lys | Ala | Pro | Leu | Leu | Val | Leu | Cys |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |
| Glu | Asp | His | Arg | Gly | Arg | Met | Val | Lys | His | Gln | Cys | Cys | Pro | Gly | Cys |
|     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gly | Tyr | Phe | Cys | Thr | Ala | Gly | Asn | Phe | Met | Glu | Cys | Gln | Pro | Glu | Ser |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ser | Ile | Ser | His | Arg | Phe | His | Lys | Asp | Cys | Ala | Ser | Arg | Val | Asn | Asn |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ala | Ser | Tyr | Cys | Pro | His | Cys | Gly | Glu | Glu | Ser | Ser | Lys | Ala | Lys | Glu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Val | Thr | Ile | Ala | Lys | Ala | Asp | Thr | Thr | Ser | Thr | Val | Thr | Pro | Val | Pro |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |
| Gly | Gln | Glu | Lys | Gly | Ser | Ala | Xaa | Gly | Gly | Arg | Ala | Asp | Thr | Thr | Thr |
|     |     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Gly | Ser | Ala | Xaa | Pro | Gly | His | His | Ser | Arg | Arg | Thr | Thr | Ser | Cys | Arg |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Val | Gln | Pro | Pro | Thr | Xaa | Pro | Glu | Gly | Phe | Asp | Pro | Thr | Gly | Pro | Ala |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Gly | Leu | Gly | Arg | Pro | Thr | Pro | Gly | Leu | Ser | Gln | Gly | Pro | Gly | Lys | Glu |
|     |     |     | 340 |     |     |     | 345 |     |     |     |     |     | 350 |     |     |
| Thr | Leu | Glu | Ser | Ala | Leu | Ile | Ala | Leu | Asp | Ser | Glu | Lys | Pro | Lys | Lys |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Leu | Arg | Phe | His | Pro | Lys | Gln | Leu | Tyr | Phe | Ser | Ala | Arg | Gln | Gly | Glu |
|     |     | 370 |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Leu | Gln | Lys | Val | Leu | Leu | Met | Leu | Val | Asp | Gly | Ile | Asp | Pro | Asn | Phe |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Lys | Met | Glu | His | Gln | Asn | Lys | Arg | Ser | Pro | Leu | His | Ala | Ala | Ala | Glu |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Ala | Gly | His | Val | Asp | Ile | Cys | His | Met | Leu | Val | Gln | Ala | Gly | Ala | Asn |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Ile | Asp | Thr | Cys | Ser | Glu | Asp | Gln | Arg | Thr | Pro | Leu | Met | Glu | Ala | Ala |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Glu | Asn | Asn | His | Leu | Glu | Ala | Val | Lys | Tyr | Leu | Ile | Lys | Ala | Gly | Ala |
|     |     | 450 |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Leu | Val | Asp | Pro | Lys | Asp | Ala | Glu | Gly | Ser | Thr | Cys | Leu | His | Leu | Ala |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Ala | Lys | Lys | Gly | His | Tyr | Glu | Val | Val | Gln | Tyr | Leu | Leu | Ser | Asn | Gly |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Arg | Met | Asp | Val | Asn | Cys | Gln | Asp | Asp | Gly | Gly | Trp | Thr | Pro | Met | Ile |

3289

930                      935                      940  
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<400> 4106  
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 Ser Tyr Thr Val Leu Gly Asp Thr Leu Ile Asp Gly Gly Glu His Tyr  
                     35                      40                      45  
 Trp Glu Val Arg Tyr Glu Pro Asp Ser Lys Ala Phe Gly Val Gly Val



|   |     |    |     |    |     |
|---|-----|----|-----|----|-----|
| 50  |     | 55 |     | 60 |     |
| Ala Tyr Arg Ser Leu Gly Arg Phe Glu Gln Leu Gly Lys Thr Ala Ala |     |    |     |    |     |
| 65  |     | 70 |     | 75 | 80  |
| Ser Trp Cys Leu His Ser Thr Ile Gly Cys Arg Ser Ala Ser Arg Lys |     |    |     |    |     |
|   | 85  |    | 90  |    | 95  |
| His Ala Asn Lys Val Lys Val Leu Asp Ala Pro Val Pro Asp Cys Leu |     |    |     |    |     |
|   | 100 |    | 105 |    | 110 |
| Gly Val His Cys Asp Phe His Gln Gly Leu Leu Ser Phe Tyr Asn Ala |     |    |     |    |     |
|   | 115 |    | 120 |    | 125 |
| Arg Thr Lys Gln Val Leu His Thr Phe Lys Thr Arg Phe Thr Gln Pro |     |    |     |    |     |
|   | 130 |    | 135 |    | 140 |
| Leu Leu Pro Ala Phe Thr Val Trp Cys Gly Ser Phe Gln Val Thr Thr |     |    |     |    |     |
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| Gly Leu Gln Val Pro Ser Ala Val Arg Cys Leu Gln Lys Arg Gly Ser |     |    |     |    |     |
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| Ala Thr Ser Ser Ser Asn Thr Ser Leu Thr                         |     |    |     |    |     |
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&lt;210&gt; 4107

&lt;211&gt; 1442

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4107

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&lt;210&gt; 4108

&lt;211&gt; 273

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4108

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Thr | Thr | Val | Ser | Thr | Gln | Arg | Gly | Pro | Val | Tyr | Ile | Gly | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Pro | Gln | Asp | Phe | Leu | Arg | Ile | Thr | Pro | Thr | Gln | Gln | Gln | Arg | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Val | Gln | Leu | Asp | Ala | Gln | Ala | Pro | Ser | Ser | Cys | Ser | Thr | Glu | Ala | Gln |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Gly | Thr | Val | Gly | Arg | Leu | Asn | Ile | Thr | Val | Val | Gln | Ala | Lys | Leu | Ala |
|     | 50  |     |     |     | 55  |     |     |     |     |     | 60  |     |     |     |     |
| Lys | Asn | Tyr | Gly | Met | Thr | Arg | Met | Asp | Pro | Tyr | Cys | Arg | Leu | Arg | Leu |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Gly | Tyr | Ala | Val | Tyr | Glu | Thr | Pro | Thr | Ala | His | Asn | Gly | Ala | Lys | Asn |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Pro | Arg | Trp | Asn | Lys | Val | Ile | His | Cys | Thr | Val | Pro | Pro | Gly | Val | Asp |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Phe | Tyr | Leu | Glu | Ile | Phe | Asp | Glu | Arg | Ala | Phe | Ser | Met | Asp | Asp |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Arg | Ile | Ala | Trp | Thr | His | Ile | Thr | Ile | Pro | Glu | Ser | Leu | Arg | Gln | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Lys | Val | Glu | Asp | Lys | Trp | Tyr | Ser | Leu | Ser | Gly | Arg | Gln | Gly | Asp | Asp |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Lys | Glu | Gly | Met | Ile | Asn | Leu | Val | Met | Ser | Tyr | Ala | Leu | Leu | Pro | Ala |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Ala | Met | Val | Met | Pro | Pro | Gln | Pro | Val | Val | Leu | Met | Pro | Thr | Val | Tyr |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Gln | Gln | Gly | Val | Gly | Tyr | Val | Pro | Ile | Thr | Gly | Met | Pro | Ala | Val | Cys |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ser | Pro | Gly | Met | Val | Pro | Val | Ala | Leu | Pro | Pro | Ala | Ala | Val | Asn | Ala |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 210 |     | 215 |     | 220 |     |     |     |     |     |     |     |     |     |     |     |
| Gln | Pro | Arg | Cys | Ser | Glu | Glu | Asp | Leu | Lys | Ala | Ile | Gln | Asp | Met | Phe |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Pro | Asn | Met | Asp | Gln | Glu | Val | Ile | Arg | Ser | Val | Leu | Glu | Ala | Gln | Arg |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Gly | Asn | Lys | Asp | Ala | Ala | Ile | Asn | Ser | Leu | Leu | Gln | Met | Gly | Glu | Glu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Pro |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4109

&lt;211&gt; 1637

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4109

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<213> Homo sapiens

<400> 4110

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ala | Leu | Lys | Leu | His | Gly | Lys | Cys | Asp | Asp | Val | Met | Arg | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Met | Ala | Glu | Leu | Gly | Leu | Glu | Ile | Pro | Ala | Tyr | Ser | Arg | Trp | Gln | Asp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Pro | Ile | Phe | Ser | Leu | Ala | Thr | Pro | Leu | Arg | Ala | Gly | Glu | Glu | Gly | Ser |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| His | Ser | Arg | Lys | Ser | Leu | Cys | Arg | Ser | Arg | Glu | Glu | Leu | Arg | Gly | Lys |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Val | Arg | Glu | Leu | Ala | Ser | Ala | Val | Arg | Asn | Ala | Lys | Tyr | Leu | Val | Val |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Tyr | Thr | Gly | Ala | Gly | Ile | Ser | Thr | Ala | Ala | Ser | Ile | Pro | Asp | Tyr | Arg |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Gly | Pro | Asn | Gly | Val | Trp | Thr | Leu | Leu | Gln | Lys | Gly | Arg | Ser | Val | Ser |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ala | Ala | Asp | Leu | Ser | Glu | Ala | Glu | Pro | Thr | Leu | Thr | His | Met | Ser | Ile |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Thr | Arg | Leu | His | Glu | Gln | Lys | Leu | Val | Gln | His | Val | Val | Ser | Gln | Asn |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Cys | Asp | Gly | Leu | His | Leu | Arg | Ser | Gly | Leu | Pro | Arg | Thr | Ala | Ile | Ser |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Glu | Leu | His | Gly | Asn | Met | Tyr | Ile | Glu | Val | Cys | Thr | Ser | Cys | Val | Pro |
|     |     |     |     | 165 |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Asn | Arg | Glu | Tyr | Val | Arg | Val | Phe | Asp | Val | Thr | Glu | Arg | Thr | Ala | Leu |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| His | Arg | His | Gln | Thr | Gly | Arg | Thr | Cys | His | Lys | Cys | Gly | Thr | Gln | Leu |
|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Arg | Asp | Thr | Ile | Val | His | Phe | Gly | Glu | Arg | Gly | Thr | Leu | Gly | Gln | Pro |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Leu | Asn | Trp | Glu | Ala | Ala | Thr | Glu | Ala | Ala | Ser | Arg | Ala | Asp | Thr | Ile |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 225 |     | 230 |     | 235 |     | 240 |     |     |     |     |     |     |     |     |     |
| Leu | Cys | Leu | Gly | Ser | Ser | Leu | Lys | Val | Leu | Lys | Lys | Tyr | Pro | Arg | Leu |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Trp | Cys | Met | Thr | Lys | Pro | Pro | Ala | Gly | Gly | Arg | Leu | Tyr | Ile | Val | Asn |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Leu | Gln | Trp | Thr | Pro | Lys | Asp | Asp | Trp | Ala | Ala | Leu | Lys | Leu | His | Gly |
|     |     | 275 |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |
| Lys | Cys | Asp | Asp | Val | Met | Arg | Leu | Leu | Met | Ala | Glu | Leu | Gly | Leu | Glu |
|     | 290 |     |     |     | 295 |     |     |     |     |     | 300 |     |     |     |     |
| Ile | Pro | Ala | Tyr | Ser | Arg | Trp | Gln | Asp | Pro | Ile | Phe | Ser | Leu | Ala | Thr |
| 305 |     |     |     | 310 |     |     |     |     |     | 315 |     |     |     | 320 |     |
| Pro | Leu | Arg | Ala | Gly | Glu | Glu | Gly | Ser | His | Ser | Arg | Lys | Ser | Leu | Cys |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |
| Arg | Ser | Arg | Glu | Glu | Ala | Pro | Pro | Gly | Asp | Arg | Gly | Ala | Pro | Leu | Ser |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Ser | Ala | Pro | Ile | Leu | Gly | Gly | Trp | Phe | Gly | Arg | Gly | Cys | Thr | Lys | Arg |
|     | 355 |     |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |
| Thr | Lys | Arg | Lys | Lys | Val | Thr |     |     |     |     |     |     |     |     |     |
|     | 370 |     |     |     |     | 375 |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4111

&lt;211&gt; 2599

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4111

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<212> PRT

<213> Homo sapiens

<400> 4112

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ala | Leu | Asp | Ser | Leu | Ser | Leu | Phe | Thr | Ser | Leu | Gly | Leu | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Gln | Lys | Ala | Arg | Glu | Thr | Leu | Lys | Asn | Ser | Ala | Leu | Ser | Ala | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Leu | Arg | Glu | Ala | Ala | Thr | Gln | Ala | Gln | Gln | Thr | Leu | Gly | Ser | Thr | Ile |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Asp | Lys | Ala | Thr | Gly | Ile | Leu | Leu | Tyr | Gly | Leu | Ala | Ser | Arg | Leu | Arg |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Asp | Thr | Arg | Arg | Leu | Ser | Phe | Leu | Val | Ser | Tyr | Ile | Ala | Ser | Lys | Lys |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Ile | His | Thr | Glu | Pro | Gln | Leu | Ser | Ala | Ala | Leu | Glu | Tyr | Val | Arg | Ser |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| His | Pro | Leu | Asp | Pro | Ile | Asp | Thr | Val | Asp | Phe | Glu | Arg | Glu | Cys | Gly |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Val | Gly | Val | Ile | Val | Thr | Pro | Glu | Gln | Ile | Glu | Glu | Ala | Val | Glu | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ala | Ile | Asn | Arg | His | Arg | Pro | Gln | Leu | Leu | Val | Glu | Arg | Tyr | His | Phe |
|     | 130 |     |     |     |     | 135 |     |     |     | 140 |     |     |     |     |     |
| Asn | Met | Gly | Leu | Leu | Met | Gly | Glu | Ala | Arg | Ala | Val | Leu | Lys | Trp | Ala |
| 145 |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |     |
| Asp | Gly | Lys | Met | Ile | Lys | Asn | Glu | Val | Asp | Met | Gln | Val | Leu | His | Leu |
|     |     |     | 165 |     |     |     | 170 |     |     |     |     |     | 175 |     |     |
| Leu | Gly | Pro | Lys | Leu | Glu | Ala | Asp | Leu | Glu | Lys | Lys | Phe | Lys | Val | Ala |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Lys | Ala | Arg | Leu | Glu | Glu | Thr | Asp | Arg | Arg | Thr | Ala | Lys | Asp | Val | Val |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Glu | Asn | Gly | Glu | Thr | Ala | Asp | Gln | Thr | Leu | Ser | Leu | Met | Glu | Gln | Leu |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Arg | Gly | Glu | Ala | Leu | Lys | Phe | His | Lys | Pro | Gly | Glu | Asn | Tyr | Lys | Thr |
| 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |     |
| Pro | Gly | Tyr | Val | Val | Thr | Pro | His | Thr | Met | Asn | Leu | Leu | Lys | Gln | His |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Leu | Glu | Ile | Thr | Gly | Gly | Gln | Val | Arg | Thr | Arg | Phe | Pro | Pro | Glu | Pro |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Asn | Gly | Ile | Leu | His | Ile | Gly | His | Ala | Lys | Ala | Ile | Asn | Phe | Asn | Phe |
|     | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Gly | Tyr | Ala | Lys | Ala | Asn | Asn | Gly | Ile | Cys | Phe | Leu | Arg | Phe | Asp | Asp |
|     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |     |
| Thr | Asn | Pro | Glu | Lys | Glu | Glu | Ala | Lys | Phe | Phe | Thr | Ala | Ile | Cys | Asp |
| 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |     |
| Met | Val | Ala | Trp | Leu | Gly | Tyr | Thr | Pro | Tyr | Lys | Val | Thr | Tyr | Ala | Ser |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
|     |     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     |     | 335 |  |
| Asp | Tyr | Phe | Asp | Gln | Leu | Tyr | Ala | Trp | Ala | Val | Glu | Leu | Ile | Arg | Arg |     |  |
|     |     |     | 340 |     |     |     |     |     | 345 |     |     |     | 350 |     |     |     |  |
| Gly | Leu | Ala | Tyr | Val | Cys | His | Gln | Arg | Gly | Glu | Glu | Leu | Lys | Gly | His |     |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |     |  |
| Asn | Thr | Leu | Pro | Ser | Pro | Trp | Arg | Asp | Arg | Pro | Met | Glu | Glu | Ser | Leu |     |  |
|     | 370 |     |     |     |     | 375 |     |     |     | 380 |     |     |     |     |     |     |  |
| Leu | Leu | Phe | Glu | Ala | Met | Arg | Lys | Gly | Lys | Phe | Ser | Glu | Gly | Glu | Ala |     |  |
| 385 |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     |     | 400 |     |  |
| Thr | Leu | Arg | Met | Lys | Leu | Val | Met | Glu | Asp | Gly | Lys | Met | Asp | Pro | Val |     |  |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |  |
| Ala | Tyr | Arg | Val | Lys | Tyr | Thr | Pro | His | His | Arg | Thr | Gly | Asp | Lys | Trp |     |  |
|     |     |     | 420 |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     |  |
| Cys | Ile | Tyr | Pro | Thr | Tyr | Asp | Tyr | Thr | His | Cys | Leu | Cys | Asp | Ser | Ile |     |  |
|     | 435 |     |     |     |     | 440 |     |     |     | 445 |     |     |     |     |     |     |  |
| Glu | His | Ile | Thr | His | Ser | Leu | Cys | Thr | Lys | Glu | Phe | Gln | Ala | Arg | Arg |     |  |
|     | 450 |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |     |     |  |
| Ser | Ser | Tyr | Phe | Trp | Leu | Cys | Asn | Ala | Leu | Asp | Val | Tyr | Cys | Pro | Val |     |  |
| 465 |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |     |     |  |
| Gln | Trp | Glu | Tyr | Gly | Arg | Leu | Asn | Leu | His | Tyr | Ala | Val | Val | Ser | Lys |     |  |
|     |     |     | 485 |     |     |     | 490 |     |     |     |     |     | 495 |     |     |     |  |
| Arg | Lys | Ile | Leu | Gln | Leu | Val | Ala | Thr | Gly | Ala | Val | Arg | Asp | Trp | Asp |     |  |
|     |     |     | 500 |     |     |     | 505 |     |     |     |     | 510 |     |     |     |     |  |
| Asp | Pro | Arg | Leu | Phe | Thr | Leu | Thr | Ala | Leu | Arg | Arg | Arg | Gly | Phe | Pro |     |  |
|     | 515 |     |     |     |     | 520 |     |     |     | 525 |     |     |     |     |     |     |  |
| Pro | Glu | Ala | Ile | Asn | Asn | Phe | Cys | Ala | Arg | Val | Gly | Val | Thr | Val | Ala |     |  |
|     | 530 |     |     | 535 |     |     |     |     |     | 540 |     |     |     |     |     |     |  |
| Gln | Thr | Thr | Met | Glu | Pro | His | Leu | Leu | Glu | Ala | Cys | Val | Arg | Asp | Val |     |  |
| 545 |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |     |     |  |
| Leu | Asn | Asp | Thr | Ala | Pro | Arg | Ala | Met | Ala | Val | Leu | Glu | Ser | Leu | Arg |     |  |
|     |     |     | 565 |     |     |     | 570 |     |     |     |     |     | 575 |     |     |     |  |
| Val | Ile | Ile | Thr | Asn | Phe | Pro | Ala | Ala | Lys | Ser | Leu | Asp | Ile | Gln | Val |     |  |
|     |     |     | 580 |     |     |     | 585 |     |     |     |     | 590 |     |     |     |     |  |
| Pro | Asn | Phe | Pro | Ala | Asp | Glu | Thr | Lys | Gly | Phe | His | Gln | Val | Pro | Phe |     |  |
|     | 595 |     |     | 600 |     |     |     |     |     | 605 |     |     |     |     |     |     |  |
| Ala | Pro | Ile | Val | Phe | Ile | Glu | Arg | Thr | Asp | Phe | Lys | Glu | Glu | Pro | Glu |     |  |
|     | 610 |     |     | 615 |     |     |     |     |     | 620 |     |     |     |     |     |     |  |
| Pro | Gly | Phe | Lys | Arg | Leu | Ala | Trp | Gly | Gln | Pro | Val | Gly | Leu | Arg | His |     |  |
| 625 |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |     |     |  |
| Thr | Gly | Tyr | Val | Ile | Glu | Leu | Gln | His | Val | Val | Lys | Gly | Pro | Ser | Gly |     |  |
|     |     |     | 645 |     |     |     | 650 |     |     |     |     |     | 655 |     |     |     |  |
| Cys | Val | Glu | Ser | Leu | Glu | Val | Thr | Cys | Arg | Arg | Ala | Asp | Ala | Gly | Glu |     |  |
|     |     |     | 660 |     |     |     | 665 |     |     |     |     |     |     |     |     |     |  |



755  
Lys Glu Asp Pro Gly Lys Val  
770 775

760

765

<210> 4113  
<211> 1894  
<212> DNA  
<213> Homo sapiens

<400> 4113  
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120  
taagagggag gcgtggacgc gaaggacacg tctgccacat cccagtcagt taatggatca  
180  
ccccaaagcg aacaaccttc attggaatct acaagcaaag aagccttctt tagcagagtg  
240  
gaaacatttt cttctttgaa atgggcgggt aagcccttg agctgtctcc actcgtctgt  
300  
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360  
tttctctgtg ccagtttaca accagctttt gactttgaca gatataagca acgatgtgct  
420  
gagctgaaga aagccttggt tactgcccac gagaagttct gtttctggcc agacagccca  
480  
tccccagacc gatttgggat gttgccctg gatgagcctg ctattcttgt tagtgaattc  
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660  
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720  
caagtccacg tctactgctg tattctctct gtgtgtggct gggcgtgtag ttctctttg  
780  
gaatccatgc agctctccct gatagcatgt tcgcaatgta tgaggaagggt ggggctctgg  
840  
ggcttccagc agattgaatc gtccatgact gacctggatg catcctttgg cctgaccagc  
900  
tccccaatcc caggccttga ggggcgacca gagcgcttac ctctggtgcc tgaatctcct  
960  
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1020  
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1260  
tctcagcata gagactggtg cccttgggtg aatatcacac ttggcaaaga aagcaggag  
1320

aatggtggaa ctgaaccaga tgccagcgcc ccagcagagc caggctggaa agcagtgcctg  
 1380  
 accatcctct tggcgcaaaa acagtctagc cagccagctg aaacggactc catgagtctc  
 1440  
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 1500  
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 1560  
 aaggctgagt tcctttcggg cagctgacac taagtttttc ctgttctggg ttaatcataa  
 1620  
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 1680  
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 1740  
 gtgtgggggt aacagactag aaggaagact aaggacctga ccaccattt cagcatcttc  
 1800  
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 1860  
 aaatatttgc taagaaaaaa aaaaaaaaaa aaaa  
 1894

<210> 4114  
 <211> 389  
 <212> PRT  
 <213> Homo sapiens

<400> 4114  
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 20 25 30  
 Lys Ala Leu Cys Thr Ala His Glu Lys Phe Cys Phe Trp Pro Asp Ser  
 35 40 45  
 Pro Ser Pro Asp Arg Phe Gly Met Leu Pro Leu Asp Glu Pro Ala Ile  
 50 55 60  
 Leu Val Ser Glu Phe Leu Asp Arg Phe Gln Ser Leu Cys His Leu Asp  
 65 70 75 80  
 Leu Gln Leu Pro Ser Leu Arg Pro Glu Asp Leu Lys Thr Met Cys Leu  
 85 90 95  
 Thr Glu Asp Lys Ile Ser Leu Leu Leu His Leu Leu Glu Asp Glu Leu  
 100 105 110  
 Asp His Arg Thr Asp Glu Arg Lys Thr Thr Ile Lys Leu Gly Ser Asp  
 115 120 125  
 Ile Gln Val His Val Thr Ala Cys Ile Leu Ser Val Cys Gly Trp Ala  
 130 135 140  
 Cys Ser Ser Ser Leu Glu Ser Met Gln Leu Ser Leu Ile Ala Cys Ser  
 145 150 155 160  
 Gln Cys Met Arg Lys Val Gly Leu Trp Gly Phe Gln Gln Ile Glu Ser  
 165 170 175  
 Ser Met Thr Asp Leu Asp Ala Ser Phe Gly Leu Thr Ser Ser Pro Ile  
 180 185 190  
 Pro Gly Leu Glu Gly Arg Pro Glu Arg Leu Pro Leu Val Pro Glu Ser  
 195 200 205  
 Pro Arg Arg Met Met Thr Arg Ser Gln Asp Ala Thr Phe Ser Pro Gly

|                         |                     |                     |
|-------------------------|---------------------|---------------------|
| 210                     | 215                 | 220                 |
| Ser Glu Gln Ala Glu Lys | Ser Pro Gly Pro Ile | Val Ser Arg Thr Arg |
| 225                     | 230                 | 235                 |
| Ser Trp Asp Ser Ser Ser | Pro Val Asp Arg Pro | Glu Pro Glu Ala Ala |
| 245                     | 250                 | 255                 |
| Ser Pro Thr Thr Arg Thr | Arg Pro Val Thr Arg | Ser Met Gly Thr Gly |
| 260                     | 265                 | 270                 |
| Asp Thr Pro Gly Leu Glu | Val Pro Ser Ser Xaa | Ser Ala Glu Ser Gln |
| 275                     | 280                 | 285                 |
| Ala Ser Ser Leu Cys Ser | Ser Ser Ser Ser Asp | Thr Ser Ser Arg Ser |
| 290                     | 295                 | 300                 |
| Phe Phe Asp Pro Thr Ser | Gln His Arg Asp Trp | Cys Pro Trp Val Asn |
| 305                     | 310                 | 315                 |
| Ile Thr Leu Gly Lys Glu | Ser Arg Glu Asn Gly | Gly Thr Glu Pro Asp |
| 325                     | 330                 | 335                 |
| Ala Ser Ala Pro Ala Glu | Pro Gly Trp Lys Ala | Val Leu Thr Ile Leu |
| 340                     | 345                 | 350                 |
| Leu Ala His Lys Gln Ser | Ser Gln Pro Ala Glu | Thr Asp Ser Met Ser |
| 355                     | 360                 | 365                 |
| Leu Ser Glu Lys Ser Arg | Lys Val Phe Arg Ile | Phe Arg Gln Trp Glu |
| 370                     | 375                 | 380                 |
| Ser Leu Cys Ser Cys     |                     |                     |
| 385                     |                     |                     |

&lt;210&gt; 4115

&lt;211&gt; 1056

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4115

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ctgaagcttt actcctcga tagtggtggg aaaagaaatc agacaaaaat ctaaggaagg  
120

accaaattatt gtacagagtg tgccagtagg cttttgcaac tggactgaaa atacctgcct  
180

tttctctcca caggggaaag tggaagttga agctgggaaa gaaggtatga agtttgaagc  
240

gagcgccttc tcatactatg gcgtgatggc cctgacagcc tctccaggtg aaaataagtc  
300

ccctectcgc ccatgtggct tgaatcactc agactctctc agtcgaagcg accggattga  
360

cgccgtcaca ccaacactgg ggagcagcaa taaccagctc aattcttcgc tctccaagt  
420

ctacatcccc gattactcgg tgcgagccct ttcggatctg cagtttgta agatctcaag  
480

acagcaatac caaaatgcct tgatggcatc ccggatggac aaaaccccc agtcttcaga  
540

cagtgaatac actaaaatcg aattgactct tacggagctg catgacgggt tgccagacga  
600

gacagccaac ctgctcaacg aacagaactg tgtgacgcac agtaaggcca accacagcct  
660

gcacaacgaa ggcgccatct aggccgcgct ggctgcaccc gccagggccc gcacccgccc  
720

agtccccgagg gcccgccct gtctgcccatt gacttcactg gtgtgagctt gtccgccatg  
 780  
 ctgtaccctg caacatcctg agaccaaaga ccttggtgccc ttcccaggag ccgcggagga  
 840  
 ggacagttag ggaggaatgg aaacgagaga tgtgaagttg gcagccgggg catggcgctc  
 900  
 aagatttttg agatgaactg attccgccc aatagaatca tgtttatttt ttcagctctc  
 960  
 ccttttatca ttattcacac tcctctgccc tcgatttgca tgaagttgaa aattggtgcg  
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<210> 4116  
 <211> 151  
 <212> PRT  
 <213> Homo sapiens

<400> 4116  
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 Thr Ala Ser Pro Gly Glu Asn Lys Ser Pro Pro Arg Pro Cys Gly Leu  
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 Asn His Ser Asp Ser Leu Ser Arg Ser Asp Arg Ile Asp Ala Val Thr  
 35 40 45  
 Pro Thr Leu Gly Ser Ser Asn Asn Gln Leu Asn Ser Ser Leu Leu Gln  
 50 55 60  
 Val Tyr Ile Pro Asp Tyr Ser Val Arg Ala Leu Ser Asp Leu Gln Phe  
 65 70 75 80  
 Val Lys Ile Ser Arg Gln Gln Tyr Gln Asn Ala Leu Met Ala Ser Arg  
 85 90 95  
 Met Asp Lys Thr Pro Gln Ser Ser Asp Ser Glu Asn Thr Lys Ile Glu  
 100 105 110  
 Leu Thr Leu Thr Glu Leu His Asp Gly Leu Pro Asp Glu Thr Ala Asn  
 115 120 125  
 Leu Leu Asn Glu Gln Asn Cys Val Thr His Ser Lys Ala Asn His Ser  
 130 135 140  
 Leu His Asn Glu Gly Ala Ile  
 145 150

<210> 4117  
 <211> 973  
 <212> DNA  
 <213> Homo sapiens

<400> 4117  
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 120  
 tgggtctcct gggcaccact cagagctctg tgcctgtggg tccaacaagt ccagagctgt  
 180  
 tggcactggt gcttcccggc tctggggcag tccgggggct gcaagtggaa acccaggggc  
 240

cctgcctggc tggggactaa gcagtgtcca gaggggggc agggagaaca gagggcttga  
 300  
 ggagggaggc agaggcctgt cagtgggtac cctcctccct cccatgcaca tctaggtccc  
 360  
 caggcacagc ctgctgtaca agcacacgac tggcctgggt gtgggcgttg gcctcagcca  
 420  
 cctggaggca tcttgagtg ggagaggtgt gttggttgc caaggccagc cagacctgag  
 480  
 tcaccgtcac cgggagaagc taccctcccc ccttcttcag ggatctccgc agtgaagcct  
 540  
 cctctaagga gtctaggac tctcccttta gagttgggga caggggggtg tgtttgtgct  
 600  
 ggctgggtc caaatactcc aggggtgtcag ctccatcccc ctgctgtcct ctgtccccag  
 660  
 gggctgggaa gacaccaacg gctgtgaaca aactcgtga tttcttcacc aagacgggtga  
 720  
 ggcggaggca ctggctgcaa aagtccaccc cctctagacc tctgcaacca cagaatcccc  
 780  
 agcccaaagg cctttgctgg tttgagttga attcagtgtg gactgaagga aaaacatatc  
 840  
 tattcacacc tcagagtgtg catccgagct cctgggtgact ggaaaaaaga aatgggtcac  
 900  
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 960  
 tcccttcacg cgt  
 973

&lt;210&gt; 4118

&lt;211&gt; 128

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4118

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Gly | Arg | Gln | Arg | Pro | Val | Ser | Gly | Tyr | Pro | Pro | Pro | Ser | His | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| His | Leu | Gly | Pro | Gln | Ala | Gln | Pro | Ala | Val | Gln | Ala | His | Asp | Trp | Pro |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Cys | Gly | Arg | Trp | Pro | Gln | Pro | Pro | Gly | Gly | Ile | Leu | Glu | Trp | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Arg | Cys | Val | Gly | Cys | Pro | Arg | Pro | Ala | Arg | Pro | Ala | Ser | Pro | Ser | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Glu | Ala | Thr | Pro | Pro | Ser | Ser | Gly | Ile | Ser | Ala | Val | Lys | Pro |     |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Pro | Leu | Arg | Ser | Pro | Arg | Thr | Leu | Pro | Leu | Glu | Leu | Gly | Thr | Gly | Gly |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Cys | Val | Cys | Ala | Gly | Leu | Gly | Pro | Asn | Thr | Pro | Gly | Cys | Gln | Leu | His |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Pro | Pro | Ala | Val | Leu | Cys | Pro | Gln | Gly | Leu | Gly | Arg | His | Gln | Arg | Leu |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |

&lt;210&gt; 4119

&lt;211&gt; 649

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

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120  
accaattttc tgaactacaa aaatgatcga accataaaaa tcaggaacac ctctggttcc  
180  
agtcagacta aagatcagag gatccctggg cgtccagcct tccaacatcc ctgaccttct  
240  
gaagtctaag atctctagct gggatgtgct tcttctcctt tcttcttact gtaacaccto  
300  
ttcctacaga gctctggcct ctctacatgg attgggaacc agatgttgtc cctgagcagc  
360  
ctccccccgt gggctgtcac cctgctggca tgcattctcg tgtccattgt cactgagttt  
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540  
agggcagctt ccgtagctgt aggctctcct ctgggttactg cccacagcct tcactaattg  
600  
gtgttcaatt cctactttga aaaatgaagt ttttcaaata gcaactagt  
649

<210> 4120  
<211> 100  
<212> PRT  
<213> Homo sapiens

<400> 4120  
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Met Leu Ser Leu Ser Ser Leu Pro Pro Trp Ala Val Thr Leu Leu Ala  
20 25 30  
Cys Ile Leu Val Ser Ile Val Thr Glu Phe Val Ser Asn Pro Ala Thr  
35 40 45  
Ile Thr Ile Phe Leu Pro Ile Leu Cys Ser Leu Val Ser Asn Ala Glu  
50 55 60  
Leu Pro Asp Ile Gln Thr Gly Cys Pro Arg Gly Leu Glu Trp Gln Ala  
65 70 75 80  
Trp Leu Arg Ala Ala Ser Val Ala Val Gly Ser Pro Leu Val Thr Ala  
85 90 95  
His Ser Leu His  
100

<210> 4121  
<211> 2490  
<212> DNA  
<213> Homo sapiens

<400> 4121  
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60

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120  
atccaggcaa tttttaccca gaaaagcaag ccggggcctg acccggttga cacgagacgc  
180  
ttgcagggtt ttcggctgga ggagtatctg atagggcagt ccattggtaa gggctgcagt  
240  
gctgctgtgt atgaagccac catgcctaca ttgcccaga acctggaggt gacaaagagc  
300  
accgggttgc ttccaggag agggccaggt accagtgcac caggagaagg gcaggagcga  
360  
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<211> 494

<212> PRT

<213> Homo sapiens

<400> 4122

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| Phe | Gly | Leu | Gly | Leu | Gly | Leu | Ile | Glu | Glu | Lys | Gln | Ala | Glu | Ser | Arg |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Ala | Val | Ser | Ala | Cys | Gln | Glu | Ile | Gln | Ala | Ile | Phe | Thr | Gln | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Ser | Lys | Pro | Gly | Pro | Asp | Pro | Leu | Asp | Thr | Arg | Arg | Leu | Gln | Gly | Phe |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Arg | Leu | Glu | Glu | Tyr | Leu | Ile | Gly | Gln | Ser | Ile | Gly | Lys | Gly | Cys | Ser |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Ala | Ala | Val | Tyr | Glu | Ala | Thr | Met | Pro | Thr | Leu | Pro | Gln | Asn | Leu | Glu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Val | Thr | Lys | Ser | Thr | Gly | Leu | Leu | Pro | Gly | Arg | Gly | Pro | Gly | Thr | Ser |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ala | Pro | Gly | Glu | Gly | Gln | Glu | Arg | Ala | Pro | Gly | Ala | Pro | Ala | Phe | Pro |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
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Pro Asp Val Leu Pro Ser Arg Leu His Pro Glu Gly Leu Gly His Gly
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Arg Thr Leu Phe Leu Val Met Lys Asn Tyr Pro Cys Thr Leu Arg Gln
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Tyr Leu Cys Val Asn Thr Pro Ser Pro Arg Leu Ala Ala Met Met Leu
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          340          345          350
Gly Ala Ile Ala Tyr Glu Ile Phe Gly Leu Val Asn Pro Phe Tyr Gly
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Gln Gly Lys Ala His Leu Glu Ser Arg Ser Tyr Gln Glu Ala Gln Leu
          370          375          380
Pro Ala Leu Pro Glu Ser Val Pro Pro Asp Val Arg Gln Leu Val Arg
          385          390          395          400
Ala Leu Leu Gln Arg Glu Ala Ser Lys Arg Pro Ser Ala Arg Val Ala
          405          410          415
Ala Asn Val Leu His Leu Ser Leu Trp Gly Glu His Ile Leu Ala Leu
          420          425          430
Lys Asn Leu Lys Leu Asp Lys Met Val Gly Trp Leu Leu Gln Gln Ser
          435          440          445
Ala Ala Thr Leu Leu Ala Asn Arg Leu Thr Glu Lys Cys Cys Val Glu
          450          455          460
Thr Lys Met Lys Met Leu Phe Leu Ala Asn Leu Glu Cys Glu Thr Leu
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&lt;210&gt; 4123

&lt;211&gt; 1095

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4123

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&lt;210&gt; 4124

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&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4124

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| Met | Ser | Ala | Ala | Gly | Ala | Gly | Ala | Gly | Val | Glu | Ala | Gly | Phe | Ser | Ser |
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| Glu | Glu | Leu | Leu | Ser | Leu | Arg | Phe | Pro | Leu | His | Arg | Ala | Cys | Arg | Asp |
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| Gly | Asp | Leu | Ala | Thr | Leu | Cys | Ser | Leu | Leu | Gln | Gln | Thr | Pro | His | Ala |
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| His | Leu | Ala | Ser | Glu | Asp | Ser | Phe | Tyr | Gly | Trp | Thr | Pro | Val | His | Trp |
|     |     |     | 50  |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ala | Ala | His | Phe | Gly | Lys | Leu | Glu | Cys | Leu | Val | Gln | Leu | Val | Arg | Ala |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gly | Ala | Thr | Leu | Asn | Val | Ser | Thr | Thr | Arg | Tyr | Ala | Gln | Thr | Pro | Ala |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
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<211> 820

<212> PRT

<213> Homo sapiens

<400> 4126

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| Ala | Ala | Ala | Gly | Ala | Ala | Arg | Arg | Val | Ser | Val | Arg | Cys | Gly | Arg | Ser |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gly | Pro | Gly | Pro | Gly | Arg | Gly | Ala | Ala | Gly | Leu | Ser | Pro | Ala | Asp | Ile |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |     |
| Ala | Leu | Ala | Ser | Glu | Gln | Gly | Ala | Ser | Cys | Ser | Val | Arg | Ala | Pro | Glu |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Arg | Lys | Leu | Arg | Met | Lys | Leu | Leu | Trp | Gln | Ala | Lys | Met | Ser | Ser | Ile |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Gln | Asp | Trp | Gly | Glu | Glu | Val | Glu | Glu | Gly | Ala | Val | Tyr | His | Val | Thr |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Leu | Lys | Arg | Val | Gln | Ile | Gln | Gln | Ala | Ala | Asn | Lys | Gly | Ala | Arg | Trp |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Leu | Gly | Val | Glu | Gly | Asp | Gln | Leu | Pro | Pro | Gly | His | Thr | Val | Ser | Gln |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Tyr | Glu | Thr | Cys | Lys | Ile | Arg | Thr | Ile | Lys | Ala | Gly | Thr | Leu | Glu | Lys |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Leu | Val | Glu | Asn | Leu | Leu | Thr | Ala | Phe | Gly | Asp | Asn | Asp | Phe | Thr | Tyr |
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| Ile | Ser | Ile | Phe | Leu | Ser | Thr | Tyr | Arg | Gly | Phe | Ala | Ser | Thr | Lys | Glu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Val | Leu | Glu | Leu | Leu | Leu | Asp | Arg | Tyr | Gly | Asn | Leu | Thr | Ser | Pro | Asn |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Cys | Glu | Glu | Asp | Gly | Ser | Gln | Ser | Ser | Ser | Glu | Ser | Lys | Met | Val | Ile |
|     |     |     | 180 |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Arg | Asn | Ala | Ile | Ala | Ser | Ile | Leu | Arg | Ala | Trp | Leu | Asp | Gln | Cys | Ala |
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| Asp | Tyr | Leu | Thr | Arg | Met | Met | Pro | Gly | Ser | Asp | Pro | Glu | Arg | Arg | Ala |
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| Gln | Asn | Leu | Leu | Glu | Gln | Phe | Gln | Lys | Gln | Glu | Val | Glu | Thr | Asp | Asn |
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| Gly | Leu | Pro | Asn | Thr | Ile | Ser | Phe | Ser | Leu | Glu | Glu | Glu | Glu | Glu | Leu |
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| Glu | Gly | Gly | Glu | Ser | Ala | Glu | Phe | Thr | Cys | Phe | Ser | Glu | Asp | Leu | Val |
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| Ala | Glu | Gln | Leu | Thr | Tyr | Met | Asp | Ala | Gln | Leu | Phe | Lys | Lys | Val | Val |

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| Pro Lys Ile His Lys Arg Ser Val Ser Val Thr Ser Ile Thr Ser Thr |     |     |
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|   | 690 | 695 |
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&lt;213&gt; Homo sapiens

&lt;400&gt; 4128

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| Arg | Tyr | Asp | Ile | Val | Phe | Leu | Pro | Pro | Ser | Phe | Pro | Ile | Val | Ala | Met |
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| Glu | Asn | Pro | Cys | Leu | Thr | Phe | Ile | Ile | Ser | Ser | Ile | Leu | Glu | Ser | Asp |

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| Gly | Asn | Ala | Val | Thr | Asn | Ala | Thr | Trp | Glu | Glu | Met | Trp | Leu | Ser | Glu |  |  |  |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |  |  |  |
| Gly | Leu | Ala | Thr | Tyr | Ala | Gln | Arg | Arg | Ile | Thr | Thr | Glu | Thr | Tyr | Gly |  |  |  |  |
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| Ala | Ala | Phe | Thr | Cys | Leu | Glu | Thr | Ala | Phe | Arg | Leu | Asp | Ala | Leu | His |  |  |  |  |
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| Val | Lys | Leu | Glu | Pro | Gly | Val | Asn | Pro | Ser | His | Leu | Met | Asn | Leu | Phe |  |  |  |  |
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| Thr | Tyr | Glu | Lys | Gly | Tyr | Cys | Phe | Val | Tyr | Tyr | Leu | Ser | Gln | Leu | Cys |  |  |  |  |
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| Gly | Asp | Pro | Gln | Arg | Phe | Asp | Asp | Phe | Leu | Arg | Ala | Tyr | Val | Glu | Lys |  |  |  |  |
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| Ser | Phe | Phe | Pro | Glu | Leu | Lys | Glu | Gln | Ser | Val | Asp | Cys | Arg | Ala | Gly |  |  |  |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |  |  |  |
| Leu | Glu | Phe | Glu | Arg | Trp | Leu | Asn | Ala | Thr | Gly | Pro | Pro | Leu | Ala | Glu |  |  |  |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |  |  |  |
| Pro | Asp | Leu | Ser | Gln | Gly | Ser | Ser | Leu | Thr | Arg | Pro | Val | Glu | Ala | Leu |  |  |  |  |
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| Phe | Gln | Leu | Trp | Thr | Ala | Glu | Pro | Leu | Asp | Gln | Ala | Ala | Ala | Ser | Ala |  |  |  |  |
|     | 260 |     |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |  |  |  |  |
| Ser | Ala | Ile | Asp | Ile | Ser | Lys | Trp | Arg | Thr | Phe | Gln | Thr | Ala | Leu | Phe |  |  |  |  |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |  |  |  |
| Leu | Asp | Arg | Leu | Leu | Asp | Gly | Ser | Pro | Leu | Pro | Gln | Glu | Val | Val | Met |  |  |  |  |
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| Ser | Leu | Ser | Lys | Cys | Tyr | Ser | Ser | Leu | Leu | Asp | Ser | Met | Asn | Ala | Glu |  |  |  |  |
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| Phe | Ala | Leu | Glu | Val | Phe | Tyr | Gln | Thr | Gln | Gly | Arg | Leu | His | Pro | Asn |  |  |  |  |
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 <211> 608  
 <212> DNA  
 <213> Homo sapiens

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 420  
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<212> PRT  
<213> Homo sapiens

<400> 4132  
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35 40 45  
Glu Leu Asp Ser Asp Ser Glu Asp Leu Asp Pro Asn Pro Glu Asp Leu  
50 55 60  
Asp Pro Val Ser Glu Asp Pro Glu Pro Asp Pro Glu Asp Leu Asn Thr  
65 70 75 80  
Val Pro Glu Asp Val Asp Pro Ser Tyr Glu Asp Leu Glu Pro Val Ser  
85 90 95  
Glu Asp Leu Asp Pro Asp Ala Glu Ala Pro Gly Ser Glu Pro Gln Asp  
100 105 110  
Pro Asp Pro Met Ser Ser Ser Phe Asp Leu Asp Pro Asp Val Ile Gly  
115 120 125  
Pro Val Pro Leu Ile Leu Asp Pro Asn Ser Asp Thr Leu Ser Pro Gly  
130 135 140  
Asp Pro Lys Val Asp Pro Xaa Ser Pro Leu Ala Ser Leu Arg Ala Pro  
145 150 155 160  
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Pro Gly Pro Ser Pro Ala Arg Ile Ala Ala Lys Pro Ser Ala Ala Ala  
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<212> DNA  
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&lt;210&gt; 4134

&lt;211&gt; 329

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4134

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Val | Ala | Glu | Pro | Ser | Ser | Pro | Thr | Glu | Glu | Glu | Glu | Glu | Glu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     | 15  |     |     |     |
| Glu | Glu | His | Ser | Ala | Glu | Pro | Arg | Pro | Arg | Thr | Arg | Ser | Asn | Pro | Glu |

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240
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Asp Trp Met Gln Ile Ile Arg Lys Arg Ala Val Val Tyr Val Gly Leu  
65 70 75 80  
Asp Ala Leu Ser Asp Thr Glu Val Ala Ala Val Gly Asn Ser Met  
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Asp Asp Gly Leu Pro Gly Ala Thr Gly Gly Lys  
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<210> 4138

<211> 353

<212> PRT

<213> Homo sapiens

<400> 4138

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| Met | Ser | Ser | Ala | Cys | Asp | Ala | Gly | Asp | His | Tyr | Pro | Leu | His | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Trp | Lys | Asn | Asp | Tyr | Arg | Gln | Leu | Glu | Lys | Glu | Leu | Gln | Gly | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asn | Val | Glu | Ala | Val | Asp | Pro | Arg | Gly | Arg | Thr | Leu | Leu | His | Leu | Ala |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |
| Val | Ser | Leu | Gly | His | Leu | Glu | Ser | Ala | Arg | Val | Leu | Leu | Arg | His | Lys |
|     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |
| Ala | Asp | Val | Thr | Lys | Glu | Asn | Arg | Gln | Gly | Trp | Thr | Val | Leu | His | Glu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ala | Val | Ser | Thr | Gly | Asp | Pro | Glu | Met | Val | Tyr | Thr | Val | Leu | Gln | His |
|     |     |     |     | 85  |     |     |     |     |     | 90  |     |     |     | 95  |     |
| Arg | Asp | Tyr | His | Asn | Thr | Ser | Met | Ala | Leu | Glu | Gly | Val | Pro | Glu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Gln | Lys | Ile | Leu | Glu | Ala | Pro | Asp | Phe | Tyr | Val | Gln | Met | Lys | Trp |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |
| Glu | Phe | Thr | Ser | Trp | Val | Pro | Leu | Val | Ser | Arg | Ile | Cys | Pro | Asn | Asp |
|     |     |     | 130 |     |     |     |     | 135 |     |     |     | 140 |     |     |     |
| Val | Cys | Arg | Ile | Trp | Lys | Ser | Gly | Ala | Lys | Leu | Arg | Val | Asp | Ile | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Leu | Leu | Gly | Phe | Glu | Asn | Met | Ser | Trp | Ile | Arg | Gly | Arg | Arg | Ser | Phe |
|     |     |     |     | 165 |     |     |     |     |     | 170 |     |     |     | 175 |     |
| Ile | Phe | Lys | Gly | Glu | Asp | Asn | Trp | Ala | Glu | Leu | Met | Glu | Val | Asn | His |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Asp | Asp | Lys | Val | Val | Thr | Thr | Glu | Arg | Phe | Asp | Leu | Ser | Gln | Glu | Met |
|     |     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |
| Glu | Arg | Leu | Thr | Leu | Asp | Leu | Met | Lys | Pro | Lys | Ser | Arg | Glu | Val | Glu |
|     |     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |
| Arg | Arg | Leu | Thr | Ser | Pro | Val | Ile | Asn | Thr | Ser | Leu | Asp | Thr | Lys | Asn |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ile | Ala | Phe | Glu | Arg | Thr | Lys | Ser | Gly | Phe | Trp | Gly | Trp | Arg | Thr | Asp |
|     |     |     |     | 245 |     |     |     |     |     | 250 |     |     |     | 255 |     |
| Lys | Ala | Glu | Val | Val | Asn | Gly | Tyr | Glu | Ala | Lys | Val | Tyr | Thr | Val | Asn |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Asn | Val | Asn | Val | Ile | Thr | Lys | Ile | Arg | Thr | Glu | His | Leu | Thr | Glu | Glu |
|     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |
| Glu | Lys | Lys | Arg | Tyr | Lys | Ala | Asp | Arg | Asn | Pro | Leu | Glu | Ser | Leu | Leu |
|     |     |     | 290 |     |     |     | 295 |     |     |     | 300 |     |     |     |     |
| Gly | Thr | Val | Glu | His | Gln | Phe | Gly | Ala | Gln | Gly | Asp | Leu | Thr | Thr | Glu |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Cys | Ala | Thr | Ala | Asn | Asn | Pro | Thr | Ala | Ile | Thr | Pro | Asp | Glu | Tyr | Phe |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Asn | Glu | Glu | Phe | Asp | Leu | Xaa | Arg | Gln | Gly | His | Trp | Xaa | Gly | Arg | Lys |

340 345 350

Ser

<210> 4139  
<211> 431  
<212> DNA  
<213> Homo sapiens

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<210> 4140  
<211> 50  
<212> PRT  
<213> Homo sapiens

<400> 4140  
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<210> 4141  
<211> 1182  
<212> DNA  
<213> Homo sapiens

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180

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 1182

&lt;210&gt; 4142

&lt;211&gt; 311

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4142

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Glu | Gln | Ser | Ile | Cys | Gln | Ala | Arg | Ala | Ala | Val | Met | Val | Tyr |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     | 15  |     |     |     |
| Asp | Asp | Ala | Asn | Lys | Lys | Trp | Val | Pro | Ala | Gly | Gly | Ser | Thr | Gly | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Ser | Arg | Val | His | Ile | Tyr | His | His | Thr | Gly | Asn | Asn | Thr | Phe | Arg | Val |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Gly | Arg | Lys | Ile | Gln | Asp | His | Gln | Val | Val | Ile | Asn | Cys | Ala | Ile |
|     |     |     | 50  |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Lys | Gly | Leu | Lys | Tyr | Asn | Gln | Ala | Thr | Gln | Thr | Phe | His | Gln | Trp |
| 65  |     |     |     |     | 70  |     |     | 75  |     |     |     | 80  |     |     |     |
| Arg | Asp | Ala | Arg | Gln | Val | Tyr | Gly | Leu | Asn | Phe | Gly | Ser | Lys | Glu | Asp |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     | 95  |     |     |     |
| Ala | Asn | Val | Phe | Ala | Ser | Ala | Met | Met | His | Ala | Leu | Glu | Val | Leu | Asn |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 100 |     | 105 |     | 110 |     |     |     |     |     |     |     |     |     |     |
| Ser | Gln | Glu | Thr | Gly | Pro | Thr | Leu | Pro | Arg | Gln | Asn | Ser | Gln | Leu | Pro |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ala | Gln | Val | Gln | Asn | Gly | Pro | Ser | Gln | Glu | Glu | Leu | Glu | Ile | Gln | Arg |
|     | 130 |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |
| Arg | Gln | Leu | Gln | Glu | Gln | Gln | Arg | Gln | Lys | Glu | Leu | Glu | Arg | Glu | Arg |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Leu | Glu | Arg | Glu | Arg | Met | Glu | Arg | Glu | Arg | Leu | Glu | Arg | Glu | Arg | Leu |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Glu | Arg | Glu | Arg | Leu | Glu | Arg | Glu | Arg | Leu | Glu | Gln | Glu | Gln | Leu | Glu |
|     | 180 |     |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Arg | Glu | Arg | Gln | Glu | Arg | Glu | Arg | Gln | Glu | Arg | Leu | Glu | Arg | Gln | Glu |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Arg | Leu | Glu | Arg | Gln | Glu | Arg | Leu | Glu | Arg | Gln | Glu | Arg | Leu | Asp | Arg |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Glu | Arg | Glu | Arg | Gln | Glu | Arg | Glu | Arg | Leu | Glu | Arg | Leu | Glu | Arg | Glu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Arg | Gln | Glu | Arg | Glu | Arg | Gln | Glu | Gln | Leu | Glu | Arg | Glu | Gln | Leu | Glu |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Trp | Glu | Arg | Glu | Arg | Arg | Ile | Ser | Ser | Ala | Ala | Ala | Pro | Ala | Ser | Val |
|     | 260 |     |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Glu | Thr | Pro | Leu | Asn | Ser | Val | Leu | Gly | Asp | Ser | Ser | Ala | Ser | Glu | Pro |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
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|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
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 <213> Homo sapiens

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&lt;210&gt; 4144

&lt;211&gt; 231

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4144

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ser | Ala | Val | Phe | Glu | Gly | Thr | Ser | Leu | Val | Asn | Met | Phe | Val |
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| Arg | Gly | Cys | Trp | Val | Asn | Gly | Ile | Arg | Arg | Leu | Ile | Val | Ser | Arg | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Gly | Asp | Glu | Glu | Glu | Phe | Phe | Glu | Ile | Arg | Thr | Glu | Trp | Ser | Asp | Arg |
|     |     |     | 35  |     |     |     | 40  |     |     |     | 45  |     |     |     |     |
| Ser | Val | Leu | Tyr | Leu | His | Arg | Ser | Leu | Ala | Asp | Leu | Gly | Arg | Leu | Trp |

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      100             105             110
Met Pro Cys Lys Tyr Ser Arg Ser Glu Val Val Leu Thr Phe Phe Glu
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Arg Ser Pro Leu Asp Gln Val Leu Lys Asn Asp Asn Val His Lys Ile
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      165             170             175
Ile Pro Asn Gly Arg Asp Gln Gln Leu Gly Val Asp Pro Thr Glu His
      180             185             190
Leu Phe Glu Asn Gly Ser Glu Phe Pro Ser Glu Leu Glu Asp Gly Asp
      195             200             205
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&lt;210&gt; 4145

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&lt;213&gt; Homo sapiens

&lt;400&gt; 4145

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&lt;211&gt; 133

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4146

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&lt;210&gt; 4148

&lt;211&gt; 697

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4148

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Cys | Glu | Ile | Met | Pro | Leu | Gln | Ser | Ser | Gln | Glu | Asp | Glu | Arg |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Pro | Leu | Ser | Pro | Phe | Tyr | Leu | Ser | Ala | His | Val | Pro | Gln | Val | Ser | Asn |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Val | Ser | Ala | Thr | Gly | Glu | Leu | Leu | Glu | Arg | Thr | Ile | Arg | Ser | Ala | Val |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Glu | Gln | His | Leu | Phe | Asp | Val | Asn | Asn | Ser | Gly | Gly | Gln | Ser | Ser | Glu |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Asp | Ser | Glu | Ser | Gly | Thr | Leu | Ser | Ala | Ser | Ser | Ala | Thr | Ser | Ala | Arg |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Gln | Arg | Arg | Arg | Gln | Ser | Lys | Glu | Gln | Asp | Glu | Val | Arg | His | Gly | Arg |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Asp | Lys | Gly | Leu | Ile | Asn | Lys | Glu | Asn | Thr | Pro | Ser | Gly | Phe | Asn | His |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Asp | Asp | Cys | Ile | Leu | Asn | Thr | Gln | Glu | Val | Glu | Lys | Val | His | Lys |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Asn | Thr | Phe | Gly | Cys | Ala | Gly | Glu | Arg | Ser | Lys | Pro | Lys | Arg | Gln | Lys |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Ser | Thr | Lys | Leu | Ser | Glu | Leu | His | Asp | Asn | Gln | Asp | Gly | Leu | Val |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Asn | Met | Glu | Ser | Leu | Asn | Ser | Thr | Arg | Ser | His | Glu | Arg | Thr | Gly | Pro |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Asp | Asp | Phe | Glu | Trp | Met | Ser | Asp | Glu | Arg | Lys | Gly | Asn | Glu | Lys | Asp |

3335

|   |     |     |
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| Lys Lys Leu Arg Asp Phe Glu Asp Asn Phe Phe Arg Gln Asn Gly Arg |     | 640 |
|   | 645 | 650 |
| Asn Val Gln Lys Glu Asp Arg Thr Pro Met Ala Glu Glu Tyr Ser Glu |     | 655 |
|   | 660 | 665 |
| Tyr Lys His Ile Lys Ala Lys Leu Arg Leu Leu Glu Val Leu Ile Ser |     | 670 |
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<210> 4150

<211> 193

<212> PRT

<213> Homo sapiens

<400> 4150

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| Met | Phe | Lys | Asn | Thr | Phe | Gln | Ser | Gly | Phe | Leu | Ser | Ile | Leu | Tyr | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ile | Gly | Ser | Lys | Pro | Leu | Gln | Ile | Trp | Asp | Lys | Lys | Val | Arg | Asn | Gly |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| His | Ile | Lys | Arg | Ile | Thr | Asp | Asn | Asp | Ile | Gln | Ser | Leu | Val | Leu | Glu |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ile | Glu | Gly | Thr | Asn | Val | Ser | Thr | Thr | Tyr | Ile | Thr | Cys | Pro | Ala | Asp |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Lys | Lys | Thr | Leu | Gly | Ile | Lys | Leu | Pro | Phe | Leu | Val | Met | Ile | Ile |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Lys | Asn | Leu | Lys | Lys | Tyr | Phe | Thr | Phe | Glu | Val | Gln | Val | Leu | Asp | Asp |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Lys | Asn | Val | Arg | Arg | Arg | Phe | Arg | Ala | Ser | Asn | Tyr | Gln | Ser | Thr | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Val | Lys | Pro | Phe | Ile | Cys | Thr | Met | Pro | Met | Arg | Leu | Asp | Asp | Gly |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Trp | Asn | Gln | Ile | Gln | Phe | Asn | Leu | Leu | Asp | Phe | Thr | Arg | Arg | Ala | Tyr |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gly | Thr | Asn | Tyr | Ile | Glu | Thr | Leu | Arg | Val | Gln | Ile | His | Ala | Asn | Cys |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Arg | Ile | Arg | Arg | Val | Tyr | Phe | Ser | Asp | Arg | Leu | Tyr | Ser | Glu | Asp | Glu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Leu | Pro | Ala | Glu | Phe | Lys | Leu | Tyr | Leu | Pro | Val | Gln | Asn | Lys | Ala | Lys |
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<210> 4151

<211> 1372

<212> DNA

<213> Homo sapiens

<400> 4151

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&lt;210&gt; 4152

&lt;211&gt; 97

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4152

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                20                25                30
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          35          40          45
Ser Glu Pro Ala Ser Val Ala Pro Asn Gln Asn Leu Leu Cys Ala Pro
          50          55          60
Arg Pro Pro Ser Thr Phe Met Ser Val Leu Leu Leu Arg Gly Gln Val
65          70          75          80
Leu Pro Ser Leu Thr Ala Leu Ala Arg Pro Ala Arg Phe Pro Ser Asn
          85          90          95
Pro

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&lt;210&gt; 4153

&lt;211&gt; 395

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4153

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395

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&lt;210&gt; 4154

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4154

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          20          25          30
Asn Gly Lys Met Ser Pro Thr Arg Phe His Ala Asn Ser Met Gly Gln
          35          40          45
Arg Ser Tyr Ser Phe Glu Ala Ser Glu Glu Asp Leu Asp Val Asn Asp
50          55          60
Lys Val Glu Glu Leu Met Arg Arg Asp Ser Ser Val Ile Lys Glu Glu
65          70          75          80
Ile Lys Ala Phe Leu Ala Asn Arg Arg Ile Ser Gln Ala Val Asp Thr
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<213> Homo sapiens

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480  
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720  
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<212> PRT  
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<210> 4157
<211> 3460
<212> DNA
<213> Homo sapiens
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&lt;210&gt; 4158

&lt;211&gt; 463

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4158

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| Met | Pro | Leu | Thr | Leu | Leu | Gln | Asp | Trp | Cys | Arg | Gly | Glu | His | Leu | Asn |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     | 15  |     |     |     |
| Thr | Arg | Arg | Cys | Met | Leu | Ile | Leu | Gly | Ile | Pro | Glu | Asp | Cys | Gly | Glu |

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455

460

&lt;210&gt; 4159

&lt;211&gt; 1491

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4159

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 Lys Phe Ser Ile Arg Asn Arg Arg His His Cys Arg Leu Cys Gly Ser  
 50 55 60  
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 65 70 75 80  
 Lys Leu Thr Ser Ala Ser Lys Glu Ser Leu Ser Thr His Thr Ser Pro  
 85 90 95  
 Ser Gln Ser Pro Asn Ser Val His Gly Ser Arg Arg Gly Ser Ile Ser  
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 Lys Leu Arg Leu Cys Met Glu Lys Val Asp Gln Lys Ala Pro Glu Tyr  
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 Glu His Ala Ser Asp Leu Arg Val Glu Val Gln Lys Val Tyr Glu Leu  
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 225 230 235 240  
 Ser Ala Thr Leu Phe Val Gln Glu Lys Leu Leu Gly Leu Met Ser Leu  
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| Met | Ala | Cys | Arg | Trp | Ser | Thr | Lys | Glu | Ser | Pro | Arg | Trp | Arg | Ser | Ala |
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| Leu | Leu | Leu | Leu | Phe | Leu | Ala | Gly | Val | Tyr | Gly | Asn | Gly | Ala | Leu | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | His | Ser | Glu | Asn | Val | His | Ile | Ser | Gly | Val | Ser | Thr | Ala | Cys | Gly |
|     | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Glu | Thr | Pro | Glu | Gln | Ile | Arg | Ala | Pro | Ser | Gly | Ile | Ile | Thr | Ser | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Trp | Pro | Ser | Glu | Tyr | Pro | Ala | Lys | Ile | Asn | Cys | Ser | Trp | Phe | Ile |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Arg | Ala | Asn | Pro | Gly | Glu | Ile | Ile | Thr | Ile | Ser | Phe | Gln | Asp | Phe | Asp |
|     |     |     |     | 85  |     |     |     |     |     | 90  |     |     |     | 95  |     |
| Ile | Gln | Gly | Ser | Arg | Arg | Cys | Asn | Leu | Asp | Trp | Leu | Thr | Ile | Glu | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Tyr | Lys | Asn | Ile | Glu | Ser | Tyr | Arg | Ala | Cys | Gly | Ser | Thr | Ile | Pro | Pro |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Pro | Tyr | Ile | Ser | Ser | Gln | Asp | His | Ile | Trp | Ile | Arg | Phe | His | Ser | Asp |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asp | Asn | Ile | Ser | Arg | Lys | Gly | Phe | Arg | Leu | Ala | Tyr | Phe | Ser | Gly | Lys |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ser | Glu | Glu | Pro | Asn | Cys | Ala | Cys | Asp | Gln | Phe | Arg | Cys | Gly | Asn | Gly |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Lys | Cys | Ile | Pro | Glu | Ala | Trp | Lys | Cys | Asn | Asn | Met | Asp | Glu | Cys | Gly |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Asp | Ser | Ser | Asp | Glu | Glu | Ile | Cys | Ala | Lys | Glu | Ala | Asn | Pro | Pro | Thr |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ala | Ala | Ala | Phe | Gln | Pro | Cys | Ala | Tyr | Asn | Gln | Phe | Gln | Cys | Leu | Ser |
|     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Arg | Phe | Thr | Lys | Val | Tyr | Thr | Cys | Leu | Pro | Glu | Ser | Leu | Lys | Cys | Asp |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gly | Asn | Ile | Asp | Cys | Leu | Asp | Leu | Gly | Asp | Glu | Ile | Asp | Cys | Asp | Val |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Pro | Thr | Cys | Gly | Gln | Trp | Leu | Lys | Tyr | Phe | Tyr | Gly | Thr | Phe | Asn | Ser |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| 260 |     |     |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |  |
| Pro | Asn | Tyr | Pro | Asp | Phe | Tyr | Pro | Pro | Gly | Ser | Asn | Cys | Thr | Trp | Leu |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |
| Ile | Asp | Thr | Gly | Asp | His | Arg | Lys | Val | Ile | Leu | Arg | Phe | Thr | Asp | Phe |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |
| Lys | Leu | Asp | Gly | Thr | Gly | Tyr | Gly | Asp | Tyr | Val | Lys | Ile | Tyr | Asp | Gly |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |
| Leu | Glu | Glu | Asn | Pro | His | Lys | Leu | Leu | Arg | Val | Leu | Thr | Ala | Phe | Asp |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |
| Ser | His | Ala | Pro | Leu | Thr | Val | Val | Ser | Ser | Ser | Gly | Gln | Ile | Arg | Val |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |
| His | Phe | Cys | Ala | Asp | Lys | Val | Asn | Ala | Ala | Arg | Gly | Phe | Asn | Ala | Thr |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |
| Tyr | Gln | Val | Asp | Gly | Phe | Cys | Leu | Pro | Trp | Glu | Ile | Pro | Cys | Gly | Gly |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |
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| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |
| Cys | Pro | Asn | Gly | Arg | Asp | Glu | Thr | Asn | Cys | Thr | Met | Cys | Gln | Lys | Glu |  |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |  |
| Glu | Phe | Pro | Cys | Ser | Arg | Asn | Gly | Val | Cys | Tyr | Pro | Arg | Ser | Asp | Arg |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |
| Cys | Asn | Tyr | Gln | Asn | His | Cys | Pro | Asn | Gly | Ser | Asp | Glu | Lys | Asn | Cys |  |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |  |
| Phe | Phe | Cys | Gln | Pro | Gly | Asn | Phe | His | Cys | Lys | Asn | Asn | Arg | Cys | Val |  |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |  |
| Phe | Glu | Ser | Trp | Val | Cys | Asp | Ser | Gln | Asp | Asp | Cys | Gly | Asp | Gly | Ser |  |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |
| Asp | Glu | Glu | Asn | Cys | Pro | Val | Ile | Val | Pro | Thr | Arg | Val | Ile | Thr | Ala |  |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |  |
| Ala | Val | Ile | Gly | Ser | Leu | Ile | Cys | Gly | Leu | Leu | Leu | Val | Ile | Ala | Leu |  |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |
| Gly | Cys | Thr | Cys | Lys | Leu | Tyr | Ser | Leu | Arg | Met | Phe | Glu | Arg | Arg | Ser |  |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |  |
| Phe | Glu | Thr | Gln | Leu | Ser | Arg | Val | Glu | Ala | Glu | Leu | Leu | Arg | Arg | Glu |  |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |  |
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| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |  |
| Val | Glu | Asp | Phe | Pro | Val | Cys | Ser | Pro | Asn | Gln | Ala | Ser | Val | Leu | Glu |  |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |  |
| Asn | Leu | Arg | Leu | Ala | Val | Arg | Ser | Gln | Leu | Gly | Phe | Thr | Ser | Val | Arg |  |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |  |
| Leu | Pro | Met | Ala | Gly | Arg | Ser | Ser | Asn | Ile | Trp | Asn | Arg | Ile | Phe | Asn |  |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |  |
| Phe | Ala | Arg | Ser | Arg | His | Ser | Gly | Ser | Leu | Ala | Leu | Val | Ser | Ala | Asp |  |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |  |
| Gly | Asp | Glu | Val | Val | Pro | Ser | Gln | Ser | Thr | Ser | Arg | Glu | Pro | Glu | Arg |  |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |  |
| Asn | His | Thr | His | Arg | Ser | Leu | Phe | Ser | Val | Glu | Ser | Asp | Asp | Thr | Asp |  |
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |  |
| Thr | Glu | Asn | Glu | Arg | Arg | Asp | Met | Ala | Gly | Ala | Ser | Gly | Gly | Val | Ala |  |
|     |     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |  |
| Ala | Pro | Leu | Pro | Gln | Lys | Val | Pro | Pro | Thr | Thr | Ala | Val | Glu | Ala | Thr |  |
|     |     | 675 |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |  |
| Val | Gly | Ala | Cys | Ala | Ser | Ser | Ser | Thr | Gln | Ser | Thr | Arg | Gly | Gly | His |  |

|   |     |     |
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| 690   | 695 | 700 |
| Ala Asp Asn Gly Arg Asp Val Thr Ser Val Glu Pro Pro Ser Val Ser |     |     |
| 705   | 710 | 715 |
| Pro Ala Arg His Gln Leu Thr Ser Ala Leu Ser Arg Met Thr Gln Gly |     | 720 |
|   | 725 | 730 |
| Leu Arg Trp Val Arg Phe Thr Leu Gly Arg Ser Ser Ser Leu Ser Gln |     | 735 |
|   | 740 | 745 |
| Asn Gln Ser Pro Leu Arg Gln Leu Asp Asn Gly Val Ser Gly Arg Glu |     | 750 |
|   | 755 | 760 |
| Asp Asp Asp Asp Val Glu Met Leu Ile Pro Ile Ser Asp Gly Ser Ser |     | 765 |
|   | 770 | 775 |
| Asp Phe Asp Val Asn Asp Cys Ser Arg Pro Leu Leu Asp Leu Ala Ser |     | 780 |
| 785   | 790 | 795 |
| Asp Gln Gly Gln Gly Leu Arg Gln Pro Tyr Asn Ala Thr Asn Pro Gly |     | 800 |
|   | 805 | 810 |
| Val Arg Pro Ser Asn Arg Asp Gly Pro Cys Glu Arg Cys Gly Ile Val |     | 815 |
|   | 820 | 825 |
| His Thr Ala Gln Ile Pro Asp Thr Cys Leu Glu Val Thr Leu Lys Asn |     | 830 |
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| Glu Thr Ser Asp Asp Glu Ala Leu Leu Leu Cys                     |     | 845 |
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&lt;211&gt; 568

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4163

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&lt;400&gt; 4164

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 Trp Gly Met Lys Gly Ile Pro Val Pro Ser Gly His Pro Gln Ala Asp  
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| Xaa | Val | Gln | Glu | Arg | Phe | Val | Ala | Gly | Ser | Leu | Ala | Gly | Ala | Thr | Ala |
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| Gln | Thr | Ile | Ile | Tyr | Pro | Met | Glu | Val | Leu | Lys | Thr | Arg | Leu | Thr | Leu |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Arg | Arg | Thr | Gly | Gln | Tyr | Lys | Gly | Leu | Leu | Asp | Cys | Ala | Arg | Arg | Ile |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Glu | Arg | Glu | Gly | Pro | Arg | Ala | Phe | Tyr | Arg | Gly | Tyr | Leu | Pro | Asn |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Val | Leu | Gly | Ile | Ile | Pro | Tyr | Ala | Gly | Ile | Asp | Leu | Ala | Val | Tyr | Glu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Thr | Leu | Lys | Asn | Trp | Trp | Leu | Gln | Gln | Tyr | Ser | His | Asp | Ser | Ala | Asp |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Pro | Gly | Ile | Leu | Val | Leu | Leu | Ala | Cys | Gly | Thr | Ile | Ser | Ser | Thr | Cys |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     |     | 110 |     |
| Gly | Gln | Ile | Ala | Ser | Tyr | Pro | Leu | Ala | Leu | Val | Arg | Thr | Arg | Met | Gln |
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| Ala | Gln | Gly | Phe | His | His | Val | Ala | Gln | Ala | His | Leu | Glu | Leu | Val | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
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| Lys | Pro | Val | Val | Met | Pro |     |     |     |     |     |     |     |     |     |     |
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| Xaa | Arg | His | Ala | Ala | Gln | His | Gly | Pro | Gly | Asn | Gln | Ala | Ser | Leu | Gly |
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| Gly | Gln | Phe | Thr | Arg | Glu | Arg | Ala | Gly | Arg | Glu | Asp | His | Arg | Ala | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gln | Thr | Ala | Gly | Val | Gln | Trp | Arg | Asp | Leu | Ser | Pro | Pro | Gln | Leu | Pro |
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| Pro | Pro | Gly | Ile | Lys | Gln | Ser | Ser | Cys | Phe | Ser | Leu | Leu | Ser | Ser | Leu |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Asp | Tyr | Arg | Tyr | Gly | Arg | Val | Glu | Ser | Val | Lys | Ile | Leu | Pro | Lys | Arg |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gly | Ser | Glu | Gly | Gly | Val | Ala | Ala | Phe | Val | Asp | Phe | Val | Asp | Ile | Lys |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ser | Ala | Gln | Lys | Ala | His | Asn | Ser | Val | Asn | Lys | Met | Gly | Asp | Arg | Asp |
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| Leu | Arg | Thr | Asp | Tyr | Asn | Glu | Pro | Gly | Thr | Ile | Pro | Ser | Ala | Ala | Arg |
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| Gly | Leu | Asp | Asp | Thr | Val | Ser | Ile | Ala | Ser | Arg | Ser | Arg | Glu | Val | Ser |
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| Gly | Phe | Arg | Gly | Gly | Gly | Gly | Gly | Pro | Ala | Tyr | Gly | Pro | Pro | Pro | Ser |
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|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
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|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
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| Tyr | Arg | Asp | Pro | Arg | Glu | Arg | Thr | Leu | Gln | His | Gly | Leu | Tyr | Tyr | Ala |
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| Ser | Arg | Ser | Arg | Ser | Pro | Asn | Arg | Phe | Asp | Ala | His | Asp | Pro | Arg | Tyr |
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|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Asp | Ile | Tyr | Arg | Asp | Asp | Ile | Thr | Arg | Glu | Val | Arg | Gly | Arg | Arg | Pro |



|   |     |     |     |  |     |
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&lt;400&gt; 4169

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<213> Homo sapiens

<400> 4170

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| Val | Val | Met | Glu | Gln | Leu | Pro | Gly | Val | Pro | Pro | Gly | Pro | Pro | His | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Arg | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Met | Pro | Leu | Gln | Leu | Glu |
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| Ala | His | Leu | Arg | Ser | His | Gly | Leu | Glu | Pro | Ala | Ala | Pro | Ser | Pro | Arg |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Leu | Arg | Pro | Glu | Glu | Ser | Leu | Asp | Pro | Pro | Gly | Ala | Met | Gln | Glu | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Leu | Gly | Ala | Leu | Glu | Pro | Leu | Pro | Pro | Ala | Pro | Gly | Asp | Thr | Gly | Val |
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| Gly | Pro | Pro | Asn | Ser | Glu | Gly | Lys | Asp | Pro | Ala | Gly | Ala | Tyr | Arg | Ser |
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| Pro | Ser | Pro | Gln | Gly | Thr | Lys | Ala | Pro | Arg | Phe | Val | Pro | Leu | Thr | Ser |
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| Ile | Cys | Phe | Pro | Asp | Ser | Leu | Leu | Gln | Asp | Glu | Glu | Arg | Ser | Phe | Phe |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Pro | Thr | Met | Glu | Glu | Met | Phe | Gly | Gly | Gly | Ala | Ala | Asp | Asp | Tyr | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
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| Gly | Arg | Ala | Ser | Gly | Ala | Gly | Pro | Glu | Thr | Pro | Gly | Leu | Gly | Leu | Asp |
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|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Gly | Leu | Ile | Gln | Ser | Gly | Pro | His | Gln | Ala | Ala | Pro | Pro | Pro | Pro | Pro |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Pro | Pro | Pro | Pro | Pro | Pro | Ala | Pro | Ala | Ser | Glu | Pro | Lys | Gly | Gly | Leu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Thr | Ser | Pro | Ile | Phe | Cys | Ser | Thr | Lys | Pro | Lys | Lys | Leu | Leu | Lys | Thr |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Ser | Ser | Phe | His | Leu | Leu | Arg | Arg | Arg | Asp | Pro | Pro | Phe | Gln | Thr | Pro |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Lys | Lys | Leu | Tyr | Ala | Gln | Glu | Tyr | Glu | Phe | Glu | Ala | Asp | Glu | Asp | Lys |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
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Leu Val His Asn Leu Arg Lys Met Met Lys Asn Asp Trp His Gly Gly
          290          295          300
Ala Ile Val Ser Ala Leu Ser Gln Thr Gly Ser Leu Phe Lys Pro Arg
305          310          315          320
Lys Ala Tyr Leu Pro Gln Glu Leu Leu Gly Lys Glu Gly Phe Asp Ala
          325          330          335
Leu Asp Pro Phe Ile Pro Ile Leu Val Ser Asn Tyr Asn Pro Lys Glu
          340          345          350
Phe Glu Ser Cys Ile Gln Tyr Tyr Leu Glu Asn Asn Trp Leu Gln His
          355          360          365
Glu Lys Ala Pro Thr Glu Glu Gly Lys Lys Glu Leu Leu Phe Leu Ser
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Asn Ala Asn Pro Ser Leu Leu Glu Arg His Cys Ala Tyr Leu
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&lt;210&gt; 4179

&lt;211&gt; 2208

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4179

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&lt;210&gt; 4180

&lt;211&gt; 257

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4180

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Leu | Thr | Leu | Ala | Gly | Gly | Ala | Leu | Phe | Phe | Pro | Gly | Leu | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Leu | Cys | Thr | Trp | Ala | Leu | Arg | Arg | Ser | Gln | Pro | Gly | Trp | Ser | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Asp | Cys | Val | Met | Ile | Ser | Thr | Arg | Leu | Val | Ser | Ser | Val | His | Ala |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |
| Val | Leu | Ala | Thr | Gly | Ser | Gly | Ile | Val | Ile | Ile | Arg | Ser | Cys | Asp | Asp |
|     |     |     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |
| Val | Ile | Thr | Gly | Arg | His | Trp | Leu | Ala | Arg | Glu | Tyr | Val | Trp | Phe | Leu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ile | Pro | Tyr | Met | Ile | Tyr | Asp | Ser | Tyr | Ala | Met | Tyr | Leu | Cys | Glu | Trp |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Cys | Arg | Thr | Arg | Asp | Gln | Asn | Arg | Ala | Pro | Ser | Leu | Thr | Leu | Arg | Asn |
|     |     |     |     | 100 |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Phe | Leu | Ser | Arg | Asn | Arg | Leu | Met | Ile | Thr | His | His | Ala | Val | Ile | Leu |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Phe | Val | Leu | Val | Pro | Val | Ala | Gln | Arg | Leu | Arg | Gly | Asp | Leu | Gly | Asp |
|     |     |     | 130 |     |     |     | 135 |     |     |     | 140 |     |     |     |     |
| Phe | Phe | Val | Gly | Cys | Ile | Phe | Thr | Ala | Glu | Leu | Ser | Thr | Pro | Phe | Val |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Ser | Leu | Gly | Arg | Val | Leu | Ile | Gln | Leu | Lys | Gln | Gln | His | Thr | Leu | Leu |
|     |     |     |     | 165 |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Tyr | Lys | Val | Asn | Gly | Ile | Leu | Thr | Leu | Ala | Thr | Phe | Leu | Ser | Cys | Arg |



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780

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<210> 4184  
 <211> 374  
 <212> PRT  
 <213> Homo sapiens

<400> 4184

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | His | Ser | Ser | Pro | Ala | Ser | Ser | Asn | Tyr | Gln | Gln | Thr | Thr | Ile | Ser | 1   | 5   | 10  | 15  |
| His | Ser | Pro | Ser | Ser | Arg | Phe | Val | Pro | Pro | Gln | Thr | Ser | Ser | Gly | Asn | 20  | 25  | 30  |     |
| Arg | Phe | Met | Pro | Gln | Gln | Asn | Ser | Pro | Val | Pro | Ser | Pro | Tyr | Ala | Pro | 35  | 40  | 45  |     |
| Gln | Ser | Pro | Ala | Gly | Tyr | Met | Pro | Tyr | Ser | His | Pro | Ser | Ser | Tyr | Thr | 50  | 55  | 60  |     |
| Thr | His | Pro | Gln | Met | Gln | Gln | Ala | Ser | Val | Ser | Ser | Pro | Ile | Val | Ala | 65  | 70  | 75  | 80  |
| Gly | Gly | Leu | Arg | Asn | Ile | His | Asp | Asn | Lys | Val | Ser | Gly | Pro | Leu | Ser | 85  | 90  | 95  |     |
| Gly | Asn | Ser | Ala | Asn | His | His | Ala | Asp | Asn | Pro | Arg | His | Gly | Ser | Ser | 100 | 105 | 110 |     |
| Glu | Asp | Tyr | Leu | His | Met | Val | His | Arg | Leu | Ser | Ser | Asp | Asp | Gly | Asp | 115 | 120 | 125 |     |
| Ser | Ser | Thr | Met | Arg | Asn | Ala | Ala | Ser | Phe | Pro | Leu | Arg | Ser | Pro | Gln | 130 | 135 | 140 |     |
| Pro | Val | Cys | Ser | Pro | Ala | Gly | Ser | Glu | Gly | Thr | Pro | Lys | Gly | Ser | Arg | 145 | 150 | 155 | 160 |
| Pro | Pro | Leu | Ile | Leu | Gln | Ser | Gln | Ser | Leu | Pro | Cys | Ser | Ser | Pro | Arg | 165 | 170 | 175 |     |
| Asp | Val | Pro | Pro | Asp | Ile | Leu | Leu | Asp | Ser | Pro | Glu | Arg | Lys | Gln | Lys | 180 | 185 | 190 |     |
| Lys | Gln | Lys | Lys | Met | Lys | Leu | Gly | Lys | Asp | Glu | Lys | Glu | Gln | Ser | Glu | 195 | 200 | 205 |     |
| Lys | Ala | Ala | Met | Tyr | Asp | Ile | Ile | Ser | Ser | Pro | Ser | Lys | Asp | Ser | Thr | 210 | 215 | 220 |     |
| Lys | Leu | Thr | Leu | Arg | Leu | Ser | Arg | Val | Arg | Ser | Ser | Asp | Met | Asp | Gln | 225 | 230 | 235 | 240 |
| Gln | Glu | Asp | Met | Leu | Ser | Gly | Met | Glu | Asn | Ser | Asn | Val | Ser | Glu | Asn | 245 | 250 | 255 |     |
| Asp | Ile | Pro | Phe | Asn | Val | Gln | Tyr | Gln | Gly | Gln | Thr | Ser | Lys | Thr | Pro | 260 | 265 | 270 |     |
| Ile | Thr | Pro | Gln | Asp | Val | Asn | Arg | Pro | Leu | Asn | Ala | Ala | Gln | Cys | Leu |     |     |     |     |

|                         |                     |                     |
|-------------------------|---------------------|---------------------|
| 275                     | 280                 | 285                 |
| Ser Gln Gln Glu Gln Thr | Ala Phe Leu Pro Ala | Asn Gln Val Pro Val |
| 290                     | 295                 | 300                 |
| Leu Gln Gln Asn Thr Ser | Val Ala Thr Lys Gln | Pro Gln Thr Ser Val |
| 305                     | 310                 | 315                 |
| Val Gln Asn Gln Gln Gln | Ile Ser Gln Gln Gly | Pro Ile Tyr Asp Glu |
| 325                     | 330                 | 335                 |
| Val Glu Leu Asp Ala Leu | Ala Glu Ile Glu Arg | Ile Glu Arg Glu Ser |
| 340                     | 345                 | 350                 |
| Ala Ile Glu Arg Glu Arg | Phe Ser Lys Glu Val | Gln Asp Lys Asp Lys |
| 355                     | 360                 | 365                 |
| Pro Leu Lys Lys Lys Lys |                     |                     |
| 370                     |                     |                     |

&lt;210&gt; 4185

&lt;211&gt; 1481

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4185

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&lt;210&gt; 4186

&lt;211&gt; 385

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4186

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Val | Phe | Lys | Ser | Leu | Asp | Lys | Lys | Asn | Asp | Gly | Arg | Ile | Asp | Ala |
| 1   |     |     | 5   |     |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Glu | Ile | Met | Gln | Ser | Leu | Arg | Asp | Leu | Gly | Val | Lys | Ile | Ser | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gln | Gln | Ala | Glu | Lys | Ile | Leu | Lys | Ser | Met | Asp | Lys | Asn | Gly | Thr | Met |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Thr | Ile | Asp | Trp | Asn | Glu | Trp | Arg | Asp | Tyr | His | Leu | Leu | His | Pro | Val |
|     | 50  |     |     |     | 55  |     |     |     |     |     | 60  |     |     |     |     |
| Glu | Asn | Ile | Pro | Glu | Ile | Ile | Leu | Tyr | Trp | Lys | His | Ser | Thr | Ile | Phe |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Asp | Val | Gly | Glu | Asn | Leu | Thr | Val | Pro | Asp | Glu | Phe | Thr | Val | Glu | Glu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Arg | Gln | Thr | Gly | Met | Trp | Trp | Arg | His | Leu | Val | Ala | Gly | Gly | Gly | Ala |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Gly | Ala | Val | Ser | Arg | Thr | Cys | Thr | Ala | Pro | Leu | Asp | Arg | Leu | Lys | Val |
|     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |     |
| Leu | Met | Gln | Val | His | Ala | Ser | Arg | Ser | Asn | Asn | Met | Gly | Ile | Val | Gly |
|     | 130 |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |     |
| Gly | Phe | Thr | Gln | Met | Ile | Arg | Glu | Gly | Gly | Ala | Arg | Ser | Leu | Trp | Arg |
| 145 |     |     | 150 |     |     |     |     | 155 |     |     |     |     |     | 160 |     |
| Gly | Asn | Gly | Ile | Asn | Val | Leu | Lys | Ile | Ala | Pro | Glu | Ser | Ala | Ile | Lys |
|     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |     |
| Phe | Met | Ala | Tyr | Glu | Gln | Ile | Lys | Arg | Leu | Val | Gly | Ser | Asp | Gln | Glu |
|     | 180 |     |     |     | 185 |     |     |     |     |     |     | 190 |     |     |     |
| Thr | Leu | Arg | Ile | His | Glu | Arg | Leu | Val | Ala | Gly | Ser | Leu | Ala | Gly | Ala |
|     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |     |
| Ile | Ala | Gln | Ser | Ser | Ile | Tyr | Pro | Met | Glu | Val | Leu | Lys | Thr | Arg | Met |
|     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |
| Ala | Leu | Arg | Lys | Thr | Gly | Gln | Tyr | Ser | Gly | Met | Leu | Asp | Cys | Ala | Arg |
| 225 |     |     | 230 |     |     |     | 235 |     |     |     |     |     |     | 240 |     |
| Arg | Ile | Leu | Ala | Arg | Glu | Gly | Val | Ala | Ala | Phe | Tyr | Lys | Gly | Tyr | Val |

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 Tyr Glu Thr Leu Lys Asn Ala Trp Leu Gln His Tyr Ala Val Asn Ser  
 275 280 285  
 Ala Asp Pro Gly Val Phe Val Leu Leu Ala Cys Gly Thr Met Ser Ser  
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 Arg Gly Leu Ala Pro Asn Phe Met Lys Val Ile Pro Ala Val Ser Ile  
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&lt;210&gt; 4187

&lt;211&gt; 1087

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4187

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<210> 4188

<211> 272

<212> PRT

<213> Homo sapiens

<400> 4188

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Ile | Asp | Arg | Ala | Cys | Pro | Glu | Ser | Ala | Ser | Leu | Leu | Gly | His |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Arg | Val | Leu | Ala | Asp | Ser | Phe | Pro | Asp | Ser | Ser | Pro | Tyr | Glu | Gly |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Tyr | Asn | Tyr | Gly | Ser | Phe | Glu | Asn | Val | Ser | Gly | Ser | Thr | Asp | Gly | Leu |
|     | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Asp | Ser | Ala | Gly | Thr | Gly | Asp | Leu | Ser | Tyr | Gly | Tyr | Gln | Gly | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Phe | Glu | Pro | Val | Gly | Thr | Arg | Pro | Arg | Val | Asp | Ser | Met | Ser | Ser |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Val | Glu | Glu | Asp | Asp | Tyr | Asp | Thr | Leu | Thr | Asp | Ile | Asp | Ser | Asp | Lys |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Asn | Val | Ile | Arg | Thr | Lys | Gln | Tyr | Leu | Tyr | Val | Ala | Asp | Leu | Ala | Arg |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Lys | Asp | Lys | Arg | Val | Leu | Arg | Lys | Lys | Tyr | Gln | Ile | Tyr | Phe | Trp | Asn |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ile | Ala | Thr | Ile | Ala | Val | Phe | Tyr | Ala | Leu | Pro | Val | Val | Gln | Leu | Val |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ile | Thr | Tyr | Pro | Glu | Xaa | Gly | Gly | Cys | Thr | Arg | Gly | Ser | Arg | Asp | Ile |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     |     | 160 |
| Cys | Ser | Ser | Asn | Phe | Leu | Cys | Ala | His | Pro | Leu | Gly | Asn | Leu | Ser | Ala |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Phe | Asn | Asn | Ile | Leu | Ser | Asn | Leu | Gly | Tyr | Ile | Leu | Leu | Gly | Leu | Leu |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Phe | Leu | Leu | Ile | Ile | Leu | Gln | Arg | Glu | Ile | Asn | His | Asn | Arg | Ala | Leu |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |
| Leu | Arg | Asn | Asp | Leu | Cys | Ala | Leu | Glu | Cys | Gly | Ile | Pro | Lys | His | Phe |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gly | Leu | Phe | Tyr | Ala | Met | Gly | Thr | Ala | Leu | Met | Met | Glu | Gly | Leu | Leu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ser | Ala | Cys | Tyr | His | Val | Cys | Pro | Asn | Tyr | Thr | Asn | Phe | Gln | Phe | Gly |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Glu | Trp | Gly | Val | Leu | Leu | Phe | Trp | Leu | Asn | Leu | Gln | Gln | Gly | Pro | Ala |
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<210> 4189

<211> 1570



&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4189

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<210> 4190

<211> 523

<212> PRT

<213> Homo sapiens

<400> 4190

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Ser | Ile | Arg | Ser | Phe | Ala | Asn | Asp | Asp | Arg | His | Val | Met | Val | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| His | Ser | Thr | Ile | Tyr | Pro | Ser | Pro | Glu | Glu | Leu | Glu | Ala | Val | Gln | Asn |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Met | Val | Ser | Thr | Val | Glu | Cys | Ala | Leu | Lys | His | Val | Ser | Asp | Trp | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp | Glu | Thr | Asn | Lys | Gly | Thr | Lys | Thr | Glu | Gly | Glu | Thr | Glu | Val | Lys |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Lys | Asp | Glu | Ala | Gly | Glu | Asn | Tyr | Ser | Lys | Asp | Gln | Gly | Gly | Arg | Thr |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Leu | Cys | Gly | Val | Met | Arg | Ile | Gly | Leu | Val | Ala | Lys | Gly | Leu | Leu | Ile |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Lys | Asp | Asp | Met | Asp | Leu | Glu | Leu | Val | Leu | Met | Cys | Lys | Asp | Lys | Pro |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Thr | Glu | Thr | Leu | Leu | Asn | Thr | Val | Lys | Asp | Asn | Leu | Pro | Ile | Gln | Ile |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Gln | Lys | Leu | Thr | Glu | Glu | Lys | Tyr | Gln | Val | Glu | Gln | Cys | Val | Asn | Glu |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ala | Ser | Ile | Ile | Ile | Arg | Asn | Thr | Lys | Glu | Pro | Thr | Leu | Thr | Leu | Lys |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Val | Ile | Leu | Thr | Ser | Pro | Leu | Ile | Arg | Asp | Glu | Leu | Glu | Lys | Lys | Asp |
|     |     |     |     | 165 |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Gly | Glu | Asn | Val | Ser | Met | Lys | Asp | Pro | Pro | Asp | Leu | Leu | Asp | Arg | Gln |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| Lys | Cys | Leu | Asn | Ala | Leu | Ala | Ser | Leu | Arg | His | Ala | Lys | Trp | Phe | Gln |
|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Ala | Arg | Ala | Asn | Gly | Leu | Lys | Ser | Cys | Val | Ile | Val | Leu | Arg | Ile | Leu |
|     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Arg | Asp | Leu | Cys | Asn | Arg | Val | Pro | Thr | Trp | Ala | Pro | Leu | Lys | Gly | Trp |
| 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |     |
| Pro | Leu | Glu | Leu | Ile | Cys | Glu | Lys | Ser | Ile | Gly | Thr | Cys | Asn | Arg | Pro |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Leu | Gly | Ala | Gly | Glu | Ala | Leu | Arg | Arg | Val | Met | Glu | Cys | Leu | Ala | Ser |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Gly | Ile | Leu | Leu | Pro | Gly | Gly | Pro | Gly | Leu | His | Asp | Pro | Cys | Glu | Arg |
|     |     | 275 |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Asp | Pro | Thr | Asp | Ala | Leu | Ser | Tyr | Met | Thr | Ile | Gln | Gln | Lys | Glu | Asp |
|     |     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Ile | Thr | His | Ser | Ala | Gln | His | Ala | Leu | Arg | Leu | Ser | Ala | Phe | Gly | Gln |
| 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |     |
| Ile | Tyr | Lys | Val | Leu | Glu | Met | Asp | Pro | Leu | Pro | Ser | Ser | Lys | Pro | Phe |
|     |     |     |     | 325 |     |     |     | 330 |     |     |     |     |     | 335 |     |
| Gln | Lys | Tyr | Ser | Trp | Ser | Val | Thr | Asp | Lys | Glu | Gly | Ala | Gly | Ser | Ser |

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<210> 4191
<211> 1661
<212> DNA
<213> Homo sapiens
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120
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300
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360
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420
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540
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600
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720

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&lt;210&gt; 4192

&lt;211&gt; 517

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4192

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Pro | Ala | Thr | Val | Gly | Val | Ala | Ser | Gly | Pro | Gly | Pro | Gly | Arg | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Pro | Leu | Gln | Asp | Glu | Thr | Leu | Gly | Val | Ala | Ser | Val | Pro | Ser | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Trp | Arg | Ala | Val | Gln | Gly | Ile | Arg | Gly | Glu | Thr | Lys | Ser | Cys | Gln | Thr |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Ala | Ser | Ile | Ala | Thr | Ala | Ser | Ala | Ser | Ala | Gln | Ala | Arg | Asn | His | Val |
|     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |     |
| Asp | Ala | Gln | Val | Gln | Thr | Glu | Ala | Pro | Val | Pro | Val | Ser | Val | Gln | Pro |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Pro | Ser | Gln | Tyr | Asp | Ile | Pro | Arg | Leu | Ala | Ala | Phe | Leu | Arg | Arg | Val |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Glu | Ala | Met | Val | Ile | Arg | Glu | Leu | Asn | Lys | Asn | Trp | Gln | Ser | His | Ala |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Phe | Asp | Gly | Phe | Glu | Val | Asn | Trp | Thr | Glu | Gln | Gln | Gln | Met | Val | Ser |

<210> 4193  
<211> 6439

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4193

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| Ser | Pro | Pro | Val | Ser | Asp | Thr | Pro | Asp | Glu | Gly | Asp | Glu | Pro | Met | Pro |
| 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |     |     |
| Ile | Pro | Glu | Asp | Leu | Ser | Thr | Thr | Ser | Gly | Gly | Gln | Gln | Ser | Ser | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Ser | Asp | Arg | Val | Val | Ala | Ser | Asn | Val | Lys | Val | Glu | Thr | Gln | Ser | Asp |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Glu | Asn | Gly | Arg | Ala | Cys | Glu | Met | Asn | Gly | Glu | Glu | Cys | Ala | Glu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Asp | Leu | Arg | Met | Leu | Asp | Ala | Ser | Gly | Glu | Lys | Met | Asn | Gly | Ser | His |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Arg | Asp | Gln | Gly | Ser | Ser | Ala | Leu | Ser | Gly | Val | Gly | Gly | Ile | Arg | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Pro | Asn | Gly | Lys | Leu | Lys | Cys | Asp | Ile | Cys | Gly | Ile | Ile | Cys | Ile | Gly |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Pro | Asn | Val | Leu | Met | Val | His | Lys | Arg | Ser | His | Thr | Gly | Glu | Arg | Pro |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Gln | Cys | Asn | Gln | Cys | Gly | Ala | Ser | Phe | Thr | Gln | Lys | Gly | Asn | Leu |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     |     | 160 |
| Leu | Arg | His | Ile | Lys | Leu | His | Ser | Gly | Glu | Lys | Pro | Phe | Lys | Cys | His |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Leu | Cys | Asn | Tyr | Ala | Cys | Arg | Arg | Arg | Asp | Ala | Leu | Thr | Gly | His | Leu |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Arg | Thr | His | Ser | Val | Gly | Lys | Pro | His | Lys | Cys | Gly | Tyr | Cys | Gly | Arg |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |
| Ser | Tyr | Lys | Gln | Arg | Ser | Ser | Leu | Glu | Glu | His | Lys | Glu | Arg | Cys | His |
|     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asn | Tyr | Leu | Glu | Ser | Met | Gly | Leu | Pro | Gly | Thr | Leu | Tyr | Pro | Val | Ile |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Lys | Glu | Glu | Thr | Asn | His | Ser | Glu | Met | Ala | Glu | Asp | Leu | Cys | Lys | Ile |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
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|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |
| Lys | Arg | Lys | Ser | Ser | Met | Pro | Gln | Lys | Phe | Leu | Gly | Asp | Lys | Gly | Leu |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Ser | Asp | Thr | Pro | Tyr | Asp | Ser | Ser | Ala | Ser | Tyr | Glu | Lys | Glu | Asn | Glu |
|     |     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Met | Met | Lys | Ser | His | Val | Met | Asp | Gln | Ala | Ile | Asn | Asn | Ala | Ile | Asn |
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|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
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| Gln | Ala | Asp | Thr | Gln | Lys | Met | Val | Glu | Ala | Gln | Arg | Gly | Val | Gly | Pro |
|     |     |     | 50  |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Arg | Ala | Cys | Tyr | Ser | Ile | Trp | Leu | Leu | Leu | Ala | Pro | Thr | Pro | Pro | Leu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ser | His | Cys | Leu | Gln | Ser | Pro | Gln | Lys | Gln | His | Gln | Val | Cys | Gly | Asp |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Arg | Arg | Leu | Lys | Ala | Ser | Ser | Thr | Asn | Cys | Pro | Ser | Glu | Lys | Cys | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ala | Trp | Ala | Arg | Tyr | Ser | His | Arg | Met | Asp | Ser | Leu | Gln | Lys | Gln | Asp |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Leu | Arg | Arg | Pro | Lys | Ile | His | Gly | Ala | Val | Gln | Ala | Ser | Pro | Tyr | Gln |
|     |     |     | 130 |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Pro | Pro | Thr | Leu | Ala | Ser | Leu | Gln | Arg | Leu | Leu | Trp | Val | Arg | Gln | Ala |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
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|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Asp | Ala | Tyr | Ala | Ala | Arg | Asp | Lys | Ser | Lys | Leu | Ile | Gln | Leu | Gly | Ile |
|     |     |     | 180 |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| Thr | His | Val | Val | Asn | Ala | Ala | Ala | Gly | Lys | Phe | Gln | Val | Asp | Thr | Gly |
|     |     |     | 195 |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
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|     |     |     | 210 |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asp | Asp | Asn | Pro | Phe | Phe | Asp | Leu | Ser | Val | Tyr | Phe | Leu | Pro | Val | Ala |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Arg | Tyr | Ile | Arg | Ala | Ala | Leu | Ser | Val | Pro | Gln | Gly | Arg | Val | Leu | Val |



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|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |  |  |  |
| Met | Ala | Asp | Tyr | Ser | Asn | Lys | Leu | Tyr | Tyr | Gln | Leu | Glu | Gln | Glu | Thr |  |  |  |  |
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| Gly | Ile | Gln | Thr | Gly | Tyr | Thr | Arg | Thr | Gly | Ser | Ile | Phe | Leu | Ala | Gln |  |  |  |  |
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| Thr | Gln | Asp | Arg | Leu | Ile | Ser | Leu | Lys | Arg | Ile | Asn | Ala | Gly | Leu | Lys |  |  |  |  |
|     | 130 |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |  |  |  |  |
| Tyr | Val | Arg | Val |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |
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&lt;211&gt; 1769

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4199

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| Trp   | Lys  | Glu | Glu | Met | Glu | Leu | Thr | Leu | Val | Gly | Leu | Gln | Tyr | Ser | Gly |
|       |      |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Lys   | Thr  | Thr | Phe | Val | Asn | Val | Ile | Ala | Ser | Gly | Gln | Phe | Ser | Glu | Asp |
|       |      | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Met   | Ile  | Pro | Thr | Val | Gly | Phe | Asn | Met | Arg | Lys | Val | Thr | Lys | Gly | Asn |
|       | 50   |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Val   | Thr  | Ile | Lys | Ile | Trp | Asp | Ile | Gly | Gly | Gln | Pro | Arg | Phe | Arg | Ser |
| 65    |      |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Met   | Trp  | Glu | Arg | Tyr | Cys | Arg | Gly | Val | Asn | Ala | Ile | Val | Tyr | Met | Ile |
|       |      |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Asp   | Ala  | Ala | Asp | Arg | Glu | Lys | Ile | Glu | Ala | Ser | Arg | Asn | Glu | Leu | His |
|       |      |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn   | Leu  | Leu | Asp | Lys | Pro | Gln | Leu | Gln | Gly | Ile | Pro | Val | Leu | Val | Leu |
|       |      | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Gly   | Asn  | Lys | Arg | Asp | Leu | Pro | Gly | Ala | Leu | Asp | Glu | Lys | Glu | Leu | Ile |
|       | 130  |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Glu   | Lys  | Met | Asn | Leu | Ser | Ala | Ile | Gln | Asp | Arg | Glu | Ile | Cys | Cys | Tyr |
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|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |  |
| Ser | Val | Ile | Val | Glu | Val | Arg | Ser | Asp | Asp | Asp | Lys | Asp | Glu | Asp | Thr |  |  |
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| His | Ser | Arg | Lys | Ser | Thr | Val | Thr | Asp | Glu | Ser | Glu | Met | Gln | Asp | Met |  |  |
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| Val | Thr | Gly | Leu | Tyr | Pro | His | His | Arg | Ser | Leu | Ser | Gly | Cys | Pro | His |  |  |
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| Ser | Lys | Ser | Ser | Ser | Asn | Ser | Asp | Arg | Ile | Leu | Arg | Pro | Met | Cys | Phe |  |  |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     |     |     | 255 |     |  |  |
| Val | Lys | Gln | Leu | Glu | Val | Pro | Pro | Tyr | Gly | Ser | Tyr | Arg | Pro | Asn | Val |  |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |  |
| Ala | Pro | Ala | Thr | Pro | Arg | Ala | Asn | Leu | Ala | Lys | Glu | Leu | Glu | Lys | Phe |  |  |
|     |     |     | 275 |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |  |
| Ser | Lys | Val | Thr | Phe | Asp | Tyr | Ala | Ser | Phe | Asp | Ala | Gln | Val | Phe | Gly |  |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |  |
| Lys | Arg | Met | Leu | Ala | Pro | Lys | Ile | Gln | Thr | Ser | Glu | Thr | Ser | Pro | Lys |  |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |  |
| Ala | Phe | Gln | Cys | Phe | Asp | Tyr | Ser | Gln | Asp | Ala | Glu | Ala | Ala | His | Met |  |  |
|     |     |     |     | 325 |     |     |     | 330 |     |     |     |     |     | 335 |     |  |  |
| Ala | Ala | Thr | Ala | Ile | Leu | Asn | Leu | Ser | Thr | Arg | Cys | Trp | Glu | Met | Pro |  |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |  |
| Glu | Asn | Leu | Ser | Thr | Lys | Pro | Gln | Asp | Leu | Pro | Ser | Lys | Ser | Val | Asp |  |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |  |
| Ile | Glu | Val | Asp | Glu | Asn | Gly | Thr | Leu | Asp | Leu | Ser | Met | His | Lys | His |  |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |  |
| Arg | Lys | Arg | Glu | Asn | Ala | Phe | Pro | Ser | Ser | Ser | Ser | Cys | Ser | Ser | Ser |  |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |  |
| Pro | Gly | Val | Lys | Ser | Pro | Asp | Ala | Ser | Gln | Arg | His | Ser | Ser | Thr | Ser |  |  |
|     |     |     |     | 405 |     |     |     | 410 |     |     |     |     |     | 415 |     |  |  |
| Ala | Pro | Ser | Ser | Ser | Met | Thr | Ser | Pro | Gln | Ser | Ser | Gln | Ala | Ser | Arg |  |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |  |
| Gln | Asp | Glu | Trp | Asp | Arg | Pro | Leu | Asp | Tyr | Thr | Lys | Pro | Ser | Arg | Leu |  |  |

|   |     |     |
|---|-----|-----|
| 435   | 440 | 445 |
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| 465   | 470 | 475 |
| Arg Lys Tyr Pro Gly Glu Val Thr Leu Thr Asn Phe Lys Leu Lys Phe |     |     |
| 485   | 490 | 495 |
| Leu Ser Lys Asp Ile Lys Lys Glu Leu Leu Thr Cys Pro Thr Pro Gly |     |     |
| 500   | 505 | 510 |
| Cys Asp Gly Ser Gly His Ile Thr Gly Asn Tyr Ala Ser His Arg Ser |     |     |
| 515   | 520 | 525 |
| Leu Ser Gly Cys Pro Leu Ala Asp Lys Ser Leu Arg Asn Leu Met Ala |     |     |
| 530   | 535 | 540 |
| Ala His Ser Ala Asp Leu Lys Cys Pro Thr Pro Gly Cys Asp Gly Ser |     |     |
| 545   | 550 | 555 |
| Gly His Ile Thr Gly Asn Tyr Ala Ser His Arg Ser Leu Ser Gly Cys |     |     |
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| Pro Arg Ala Lys Lys Ser Gly Val Lys Val Ala Pro Thr Lys Asp Asp |     |     |
| 580   | 585 | 590 |
| Lys Glu Asp Pro Glu Leu Met Lys Cys Pro Val Pro Gly Cys Val Gly |     |     |
| 595   | 600 | 605 |
| Leu Gly His Ile Ser Gly Lys Tyr Ala Ser His Arg Ser Ala Ser Gly |     |     |
| 610   | 615 | 620 |
| Cys Pro Leu Ala Ala Arg Arg Gln Lys Glu Gly Ser Leu Asn Gly Ser |     |     |
| 625   | 630 | 635 |
| Ser Phe Ser Trp Lys Ser Leu Lys Asn Glu Gly Pro Thr Cys Pro Thr |     |     |
| 645   | 650 | 655 |
| Pro Gly Cys Asp Gly Ser Gly His Ala Asn Gly Ser Phe Leu Thr His |     |     |
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| Arg Ser Leu Ser Gly Cys Pro Arg Ala Thr Phe Ala Gly Lys Lys Gly |     |     |
| 675   | 680 | 685 |
| Lys Leu Ser Gly Asp Glu Val Leu Ser Pro Lys Phe Lys Thr Ser Asp |     |     |
| 690   | 695 | 700 |
| Val Leu Glu Asn Asp Glu Glu Ile Lys Gln Leu Asn Gln Glu Ile Arg |     |     |
| 705   | 710 | 715 |
| Asp Leu Asn Glu Ser Asn Ser Glu Met Glu Ala Ala Met Val Gln Leu |     |     |
| 725   | 730 | 735 |
| Gln Ser Gln Ile Ser Ser Met Glu Lys Asn Leu Lys Asn Ile Glu Glu |     |     |
| 740   | 745 | 750 |
| Glu Asn Lys Leu Ile Glu Glu Gln Asn Glu Ala Leu Phe Leu Glu Leu |     |     |
| 755   | 760 | 765 |
| Ser Gly Leu Ser Gln Ala Leu Ile Gln Ser Leu Ala Asn Ile Arg Leu |     |     |
| 770   | 775 | 780 |
| Pro His Met Glu Pro Ile Cys Glu Gln Asn Phe Asp Ala Tyr Val Ser |     |     |
| 785   | 790 | 795 |
| Thr Leu Thr Asp Met Tyr Ser Asn Gln Asp Pro Glu Asn Lys Asp Leu |     |     |
| 805   | 810 | 815 |
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&lt;210&gt; 4207

&lt;211&gt; 1016

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens



&lt;400&gt; 4207

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&lt;210&gt; 4208

&lt;211&gt; 193

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4208

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960

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<212> PRT

<213> Homo sapiens

<400> 4210

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| Xaa | Ser | Cys | Thr | Trp | Ala | Ser | Arg | Lys | Met | Val | Val | Met | Ala | Arg | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Arg | Pro | Glu | Arg | Pro | Asp | Leu | Val | Phe | Glu | Glu | Glu | Asp | Leu | Pro |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Tyr | Glu | Glu | Glu | Ile | Met | Arg | Asn | Gln | Phe | Ser | Val | Lys | Cys | Trp | Leu |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |
| Arg | Tyr | Ile | Glu | Phe | Lys | Gln | Gly | Ala | Pro | Lys | Pro | Arg | Leu | Asn | Gln |
|     |     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |
| Leu | Tyr | Glu | Arg | Ala | Leu | Lys | Leu | Leu | Pro | Cys | Ser | Tyr | Lys | Leu | Trp |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Tyr | Arg | Tyr | Leu | Lys | Ala | Arg | Arg | Ala | Gln | Val | Lys | His | Arg | Cys | Val |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Thr | Asp | Pro | Ala | Tyr | Glu | Asp | Val | Asn | Asn | Cys | His | Glu | Arg | Ala | Phe |
|     |     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |
| Val | Phe | Met | His | Lys | Met | Pro | Arg | Leu | Trp | Leu | Asp | Tyr | Cys | Gln | Phe |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |
| Leu | Met | Asp | Gln | Gly | Arg | Val | Thr | His | Thr | Arg | Arg | Thr | Phe | Asp | Arg |
|     |     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |
| Ala | Leu | Arg | Ala | Leu | Pro | Ile | Thr | Gln | His | Ser | Arg | Ile | Trp | Pro | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Tyr | Leu | Arg | Phe | Leu | Arg | Ser | His | Pro | Leu | Pro | Glu | Thr | Ala | Val | Arg |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Gly | Tyr | Arg | Arg | Phe | Leu | Lys | Leu | Ser | Pro | Glu | Ser | Ala | Glu | Glu | Tyr |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ile | Glu | Tyr | Leu | Lys | Ser | Ser | Asp | Arg | Leu | Asp | Glu | Ala | Ala | Gln | Arg |
|     |     |     | 195 |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Leu | Ala | Thr | Val | Val | Asn | Asp | Glu | Arg | Phe | Val | Ser | Lys | Ala | Gly | Lys |
|     |     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |
| Ser | Asn | Tyr | Gln | Leu | Trp | His | Glu | Leu | Cys | Asp | Leu | Ile | Ser | Gln | Asn |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Pro | Asp | Lys | Val | Gln | Ser | Leu | Asn | Val | Asp | Ala | Ile | Ile | Arg | Gly | Gly |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Leu | Thr | Arg | Phe | Thr | Asp | Gln | Leu | Gly | Lys | Leu | Trp | Cys | Ser | Leu | Ala |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Asp | Tyr | Tyr | Ile | Arg | Ser | Gly | His | Phe | Glu | Lys | Ala | Arg | Asp | Val | Tyr |
|     |     |     | 275 |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Glu | Glu | Ala | Ile | Arg | Thr | Val | Met | Thr | Val | Arg | Asp | Phe | Thr | Gln | Val |
|     |     |     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |
| Phe | Asp | Ser | Tyr | Ala | Gln | Phe | Glu | Glu | Ser | Met | Ile | Ala | Ala | Lys | Met |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     | 320 |     |
| Glu | Thr | Ala | Ser | Glu | Leu | Gly | Arg | Glu | Glu | Glu | Asp | Asp | Val | Asp | Leu |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Glu | Leu | Arg | Leu | Ala | Arg | Phe | Glu | His | Leu | Ile | Ser | Arg | Arg | Pro | Leu |

3407

|                         |                         |                         |     |     |
|-------------------------|-------------------------|-------------------------|-----|-----|
| 770                     |                         | 775                     |     | 780 |
| Glu Gln Leu Ala Ala     | Glu Ala Glu Arg Asp     | Gln Pro Leu Arg Ala Gln |     |     |
| 785                     | 790                     | 795                     | 800 |     |
| Ser Lys Ile Leu Phe Val | Arg Ser Asp Ala Ser Arg | Glu Glu Leu Ala         |     |     |
|                         | 805                     | 810                     | 815 |     |
| Glu Leu Ala Gln Gln Val | Asn Pro Glu Glu Ile Gln | Leu Gly Glu Asp         |     |     |
|                         | 820                     | 825                     | 830 |     |
| Glu Asp Glu Asp Glu Met | Asp Leu Glu Pro Asn Glu | Val Arg Leu Glu         |     |     |
|                         | 835                     | 840                     | 845 |     |
| Gln Gln Ser Val Pro Ala | Ala Val Phe Gly Ser Leu | Lys Glu Asp             |     |     |
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| 20 25 30  |  |
| Arg Ser Val Glu Arg Leu Phe Ser Ser Leu Arg Val Trp Lys Ser Ala |  |
| 35 40 45  |  |
| Leu Asp Pro Tyr Ser Arg Pro Arg Glu Ser Val Val Thr Lys Arg Arg |  |
| 50 55 60  |  |
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 35 40 45  
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 atcttgaatt tgaccagag ctcaggcttc aatgggttta ctccctggt cacccttctc  
 420  
 ttaagacaca tcattgagga cccctgtacc ctctgcata ccattggaaa gggtgttcgc  
 480  
 tcagcagcta caagtggagc tggtagcact acctctggtg ttgtgtctgg cagcctcggc  
 540  
 tctcgggaga tcaactacat cctctgtgtc cttgggccag ccgcatgccg caatccagac  
 600  
 atattcacag aagtggccaa ctgctgtatc cgcacgccc ttctgcccc tcgagggtca  
 660  
 ggaactgctt cagatgatga atttgagaat cttagaatta aaggccctaa tgctgtacag  
 720  
 ctggtgaaga ccaccctttt gaagccctca cctctgctg tcacccctga tactatcaag  
 780  
 gaagtgatct atgatatgct gaatgctctg gctgcatacc atgctccaga ggaagcagat  
 840  
 aaatctgatc ctaaacctgg gggtatgacc caagagggtg gccagctcct gcaagacatg  
 900  
 ggtgatgatg tataaccagca gtaccgggtca cttacgcgt  
 939

&lt;210&gt; 4216

&lt;211&gt; 287

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4216

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Lys | Arg | Lys | Glu | Asn | Lys | Gly | Asn | Asp | Thr | Pro | Leu | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Glu | Ser | Thr | Asn | Thr | Glu | Lys | Glu | Thr | Ser | Leu | Glu | Glu | Thr | Lys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ile | Gly | Glu | Ile | Leu | Ile | Gln | Gly | Leu | Thr | Glu | Asp | Met | Val | Thr | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Ile | Arg | Ala | Cys | Val | Ser | Met | Leu | Gly | Val | Pro | Val | Asp | Pro | Asp |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Thr | Leu | His | Ala | Thr | Leu | Cys | Phe | Cys | Leu | Arg | Val | Thr | Arg | Gly | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gln | Leu | Ala | Met | Met | Phe | Ala | Glu | Leu | Lys | Asn | Thr | Arg | Met | Ile | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Asn | Leu | Thr | Gln | Ser | Ser | Gly | Phe | Asn | Gly | Phe | Thr | Pro | Leu | Val | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Leu | Leu | Arg | His | Ile | Ile | Glu | Asp | Pro | Cys | Thr | Leu | Arg | His | Thr |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Met | Glu | Lys | Val | Val | Arg | Ser | Ala | Ala | Thr | Ser | Gly | Ala | Gly | Ser | Thr |
|     | 130 |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |
| Thr | Ser | Gly | Val | Val | Ser | Gly | Ser | Leu | Gly | Ser | Arg | Glu | Ile | Asn | Tyr |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 145 |     | 150 |     | 155 |     | 160 |     |     |     |     |     |     |     |     |     |     |     |
| Ile | Leu | Arg | Val | Leu | Gly | Pro | Ala | Ala | Cys | Arg | Asn | Pro | Asp | Ile | Phe |     |     |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |
| Thr | Glu | Val | Ala | Asn | Cys | Cys | Ile | Arg | Ile | Ala | Leu | Pro | Ala | Pro | Arg |     |     |
|     |     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| Gly | Ser | Gly | Thr | Ala | Ser | Asp | Asp | Glu | Phe | Glu | Asn | Leu | Arg | Ile | Lys |     |     |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |     |
| Gly | Pro | Asn | Ala | Val | Gln | Leu | Val | Lys | Thr | Thr | Pro | Leu | Lys | Pro | Ser |     |     |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |     |
| Pro | Leu | Pro | Val | Ile | Pro | Asp | Thr | Ile | Lys | Glu | Val | Ile | Tyr | Asp | Met |     |     |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |     |     |
| Leu | Asn | Ala | Leu | Ala | Ala | Tyr | His | Ala | Pro | Glu | Glu | Ala | Asp | Lys | Ser |     |     |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     | 255 |     |     |     |     |
| Asp | Pro | Lys | Pro | Gly | Val | Met | Thr | Gln | Glu | Val | Gly | Gln | Leu | Leu | Gln |     |     |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 | Met | Gly | Asp | Asp |
| Val | Tyr | Gln | Gln | Tyr | Arg | Ser | Leu | Thr | Arg |     |     |     |     |     |     |     |     |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |     |

&lt;210&gt; 4217

&lt;211&gt; 619

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4217

acacacacac gcacacaaaa ctcagccaca ggctcaccag ggtctctctc aacatgcaca  
60  
catacacaca cacaccctc agtcataggc tcacaagagt ctctcttgct tctctctcat  
120  
acatacacac acacacacaa ccagccacag gccacaaaag gtgtctctct ctttgctcct  
180  
gtctgtctct tcgcactcac acacacacat ctcagccaca ggcccaccag agtctgtctg  
240  
tctctttgct tctctcactc tctctcacac acatacacct cagccacagg ccacaaagg  
300  
tctctctcct tgtccctggc tctctctctc cgcacactcc cacacacaca catacagctc  
360  
agccacaggc ccacgagggt gtctctctct ctctctctct ctcacacaca cacacacaca  
420  
cacacacgcc tgtgcagctc cacaggggcc tggggcagga gacagatctg aatacacata  
480  
ccaccctgtg ctgtgagtg ccactcccat ccaacaactg agactttctg ttactggggc  
540  
aagggtttct gccaaactca cttcccttat aatgaatgaa ttatccctca gaagggtcca  
600  
cagtcctccc ctggcgcg  
619

&lt;210&gt; 4218

&lt;211&gt; 155

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4218

Met His Thr Tyr Thr His Thr Pro Leu Ser His Arg Leu Thr Arg Val

```

1           5           10           15
Ser Leu Val Ser Leu Ser Tyr Ile His Thr His Thr Gln Pro Ala Thr
20           25           30
Gly Pro Gln Arg Cys Leu Ser Leu Cys Pro Cys Leu Leu Ser Arg Thr
35           40           45
His Thr His Thr Ser Gln Pro Gln Ala His Gln Ser Leu Ser Val Ser
50           55           60
Leu Ser Leu Ser Leu Ser Leu Thr His Ile His Leu Ser His Arg Pro
65           70           75           80
Thr Arg Val Ser Leu Leu Val Pro Gly Ser Ser Leu Ser His Thr Pro
85           90           95
Thr His Thr His Thr Ala Gln Pro Gln Ala His Glu Gly Val Ser Leu
100          105          110
Ser Leu Ser Leu Ser His Thr His Thr His Thr His Thr Pro Val Gln
115          120          125
Leu His Arg Gly Leu Gly Gln Glu Thr Asp Leu Asn Thr His Thr Thr
130          135          140
Leu Cys Cys Glu Trp Pro Leu Pro Ser Asn Asn
145          150          155

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&lt;210&gt; 4219

&lt;211&gt; 774

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4219

```

ngcggccgcg cacctgctcc cgtcgcccta cagcaagatc acgccccgcg ggaggcccca
60
ccgctgcagc agcggccacg gcagcgacaa cagcagcgtg ctgagcgggg agctcccgcc
120
ggccatgggg aagacggccc tgttctacca cagcggcggc agcagcggt acgagagcgt
180
gatgcgggac agcagaggcca ccggcagcgc gtccctcggcg caggactcca cgagcgagaa
240
cagcagctcc gtgggcggca ggtgccggag cctcaagacc ccgaagaaac gctccaatcc
300
aggttctcag agacggaggc ttatcccagc actatccctg gacacctctt cccctgtgag
360
aaaaccccc aacagcacag gcgtccgctg ggtggatggn nccccttgcg gagcagcccg
420
aggggccttg gggaaccttt gagattaaag tctnatgaaa tcgatgacgt ggagcgcctg
480
cagcggcgac gagggggtgc cagcaaggag gccatgtgct tcaatgcaaa gctgaagatt
540
ctggaacacc gccagcagag gatcgccgag gtccgcgcga agtacgagtg gctgatgaag
600
gagctggagg cgaccaaaca gtatctgatg ctggatccca acaagtggct cagtgaattt
660
gacttggagc aggtttggga gctggattcc ctggagtacc tggaggcact ggagtgtgtg
720
acggagcgcc tggagagccg tgtcaacttc tgcaaggccc atctcatgat gctc
774

```

&lt;210&gt; 4220

<211> 258  
 <212> PRT  
 <213> Homo sapiens

<400> 4220  
 Xaa Gly Arg Ala Pro Ala Pro Val Ala Leu Gln Gln Asp His Ala Pro  
 1 5 10 15  
 Ala Glu Ala Pro Pro Leu Gln Gln Arg Pro Arg Gln Arg Gln Gln Gln  
 20 25 30  
 Arg Ala Glu Arg Gly Ala Pro Ala Gly His Gly Glu Asp Gly Pro Val  
 35 40 45  
 Leu Pro Gln Arg Arg Gln Gln Arg Leu Arg Glu Arg Asp Ala Gly Gln  
 50 55 60  
 Arg Gly His Arg Gln Arg Val Leu Gly Ala Gly Leu His Glu Arg Glu  
 65 70 75 80  
 Gln Gln Leu Arg Gly Arg Gln Val Pro Glu Pro Gln Asp Pro Glu Glu  
 85 90 95  
 Thr Leu Gln Ser Arg Phe Ser Glu Thr Glu Ala Tyr Pro Ser Thr Ile  
 100 105 110  
 Pro Gly His Leu Phe Pro Cys Glu Lys Thr Pro Gln Gln His Arg Arg  
 115 120 125  
 Pro Leu Gly Gly Trp Xaa Pro Leu Arg Ser Ser Pro Arg Gly Leu Gly  
 130 135 140  
 Glu Pro Leu Arg Leu Lys Ser Xaa Glu Ile Asp Asp Val Glu Arg Leu  
 145 150 155 160  
 Gln Arg Arg Arg Gly Gly Ala Ser Lys Glu Ala Met Cys Phe Asn Ala  
 165 170 175  
 Lys Leu Lys Ile Leu Glu His Arg Gln Gln Arg Ile Ala Glu Val Arg  
 180 185 190  
 Ala Lys Tyr Glu Trp Leu Met Lys Glu Leu Glu Ala Thr Lys Gln Tyr  
 195 200 205  
 Leu Met Leu Asp Pro Asn Lys Trp Leu Ser Glu Phe Asp Leu Glu Gln  
 210 215 220  
 Val Trp Glu Leu Asp Ser Leu Glu Tyr Leu Glu Ala Leu Glu Cys Val  
 225 230 235 240  
 Thr Glu Arg Leu Glu Ser Arg Val Asn Phe Cys Lys Ala His Leu Met  
 245 250 255  
 Met Leu

<210> 4221  
 <211> 789  
 <212> DNA  
 <213> Homo sapiens

<400> 4221  
 aatgtgaaga ggattaaaga ataaagaaaa aacaaaaaag tcttatacta aaataagaaa  
 60  
 tcagcccccatt cttggcacag ttctcatgca gaatattgca cccagtgtga actaacgcta  
 120  
 gaagcttcaa actgtataaa tttaaagtga tttgcatatt ataaaaataa agataaacat  
 180  
 atacatatatt tacactagtt atggaacagc aatgaacgtc agtcgatccc tctttcacat  
 240

ttaacagaac tgaaatctga gtgctctaaa tactgccacc tgtactgtaa ctatggctta  
 300  
 tatgtgcacg gaaaacaaaa tccctgagaa gccattcgac tttttttttt tttcttttct  
 360  
 tcaagtagcg cgctccttgg aggatcacag ttctgagggt cagggtgtaa aacatttgc  
 420  
 ccatgttctc gtccatgctt cccccacca cccctcccc acctcttccc cagtcgtcca  
 480  
 aaaagcacc tgcaagcacg cgttgtcact caagttcaca gaacacgctg gggtgagtgc  
 540  
 agaggggtctg ccagggtcaa aagatgggtc aggtgttcag atgctctctt ttctccatgg  
 600  
 aaattccaca gccacaaacg tcaactggtt ctgtgctttt caccaacatt cttcccttaa  
 660  
 aaattggtgc tcctaaagtc acagtttggg tacagtaaaa atgatggcat aaggaaaaga  
 720  
 agcactatct tttccactta attttccaag aaagtatgaa gatacttgga acaggggctg  
 780  
 atcacagtc  
 789

<210> 4222  
 <211> 127  
 <212> PRT  
 <213> Homo sapiens

<400> 4222  
 Met Ala Tyr Met Cys Thr Glu Asn Lys Ile Pro Glu Lys Pro Phe Asp  
 1 5 10 15  
 Phe Phe Phe Phe Ser Phe Leu Gln Val Ala Arg Ser Leu Glu Asp His  
 20 25 30  
 Ser Ser Glu Val Gln Val Val Lys His Leu Leu His Val Leu Val His  
 35 40 45  
 Ala Ser Pro His His Pro Leu Pro Thr Ser Ser Pro Val Val Gln Lys  
 50 55 60  
 Ala Pro Cys Lys His Ala Leu Ser Leu Lys Phe Thr Glu His Ala Gly  
 65 70 75 80  
 Val Ser Ala Glu Gly Leu Pro Gly Ala Lys Asp Gly Pro Gly Val Gln  
 85 90 95  
 Met Leu Ser Phe Leu His Gly Asn Ser Thr Ala Thr Asn Val Thr Gly  
 100 105 110  
 Phe Cys Ala Phe His Gln His Ser Ser Leu Lys Asn Trp Cys Ser  
 115 120 125

<210> 4223  
 <211> 852  
 <212> DNA  
 <213> Homo sapiens

<400> 4223  
 atcctggacc agggctacta ctccggagcga gacacaagca acgtgggtacg gcaagtcctg  
 60  
 gagggccgtgg cctattttgca ctcaactcaag atcgtgcaca ggaatctcaa gctggagaac  
 120

ctggtttact acaaccggct gaagaactcg aagattgtca tcagtgactt ccatctggct  
 180  
 aagctagaaa atggcctcat caaggagccc tgtgggaccc ccgaagattt tgcccccaa  
 240  
 ggggaaggcc ggcagcggta tggacgcctt gtggactgct gggccattgg agtcatcatg  
 300  
 tacatcctgc tttcaggcaa tccacctttc tatgaggagg tggaagaaga tgattatgag  
 360  
 aaccatgata agaatctctt ccgcaagatc ctggctgggtg actatgagtt tgactctcca  
 420  
 tattgggatg atatttcgca ggcagccaaa gacctgggtca caaggctgat ggaggtggag  
 480  
 caagaccagc ggatcactgc agaagaggcc atctcccatg agtggatttc tggcaatgct  
 540  
 gcttctgata agaacatcaa ggatgggtgc tgtgcccaga ttgaaaagaa ctttgccagg  
 600  
 gccaaagtga agaaggctgt ccgagtgacc accctcatga aacgggtccg ggcaccagag  
 660  
 cagtccagca cggctgcagc ccagtcggcc tcagccacag aactgccac ccccggggct  
 720  
 gcagaccgta gtgccacccc agccacagat ggaagtgcc acccagccac tgatggcagt  
 780  
 gtcaccccag ccaccgatgg aagcatcact ccagccattg atgggagtgt caccacagcc  
 840  
 actgacagga gc  
 852

<210> 4224

<211> 284

<212> PRT

<213> Homo sapiens

<400> 4224

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Leu | Asp | Gln | Gly | Tyr | Tyr | Ser | Glu | Arg | Asp | Thr | Ser | Asn | Val | Val |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Arg | Gln | Val | Leu | Glu | Ala | Val | Ala | Tyr | Leu | His | Ser | Leu | Lys | Ile | Val |
|     | 20  |     |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| His | Arg | Asn | Leu | Lys | Leu | Glu | Asn | Leu | Val | Tyr | Tyr | Asn | Arg | Leu | Lys |
|     | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asn | Ser | Lys | Ile | Val | Ile | Ser | Asp | Phe | His | Leu | Ala | Lys | Leu | Glu | Asn |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Leu | Ile | Lys | Glu | Pro | Cys | Gly | Thr | Pro | Glu | Asp | Phe | Ala | Pro | Gln |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     | 80  |     |
| Gly | Glu | Gly | Arg | Gln | Arg | Tyr | Gly | Arg | Pro | Val | Asp | Cys | Trp | Ala | Ile |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Gly | Val | Ile | Met | Tyr | Ile | Leu | Leu | Ser | Gly | Asn | Pro | Pro | Phe | Tyr | Glu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Glu | Val | Glu | Glu | Asp | Asp | Tyr | Glu | Asn | His | Asp | Lys | Asn | Leu | Phe | Arg |
|     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Lys | Ile | Leu | Ala | Gly | Asp | Tyr | Glu | Phe | Asp | Ser | Pro | Tyr | Trp | Asp | Asp |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ile | Ser | Gln | Ala | Ala | Lys | Asp | Leu | Val | Thr | Arg | Leu | Met | Glu | Val | Glu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Gln | Asp | Gln | Arg | Ile | Thr | Ala | Glu | Glu | Ala | Ile | Ser | His | Glu | Trp | Ile |

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                165                170                175
Ser Gly Asn Ala Ala Ser Asp Lys Asn Ile Lys Asp Gly Val Cys Ala
                180                185                190
Gln Ile Glu Lys Asn Phe Ala Arg Ala Lys Trp Lys Lys Ala Val Arg
                195                200                205
Val Thr Thr Leu Met Lys Arg Leu Arg Ala Pro Glu Gln Ser Ser Thr
                210                215                220
Ala Ala Ala Gln Ser Ala Ser Ala Thr Asp Thr Ala Thr Pro Gly Ala
225                230                235                240
Ala Asp Arg Ser Ala Thr Pro Ala Thr Asp Gly Ser Ala Thr Pro Ala
                245                250                255
Thr Asp Gly Ser Val Thr Pro Ala Thr Asp Gly Ser Ile Thr Pro Ala
                260                265                270
Ile Asp Gly Ser Val Thr Pro Ala Thr Asp Arg Ser
                275                280

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&lt;210&gt; 4225

&lt;211&gt; 470

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4225

```

nntgtacaag aaagtgagcc agtcatcgctc aatattcaag tgatggatgc aaatgataac
60
acgccaaacct tccctgaaat atcctatgat gtgtatgttt atacagacat gagacctggg
120
gacagggtcc tacagttaac tgcagtcgac gcagacgaag ggtcaaattgg ggagatcaca
180
tatgaaatcc ttgttggggc tcaggggagac ttcatcatca ataaaacaac agggccttacc
240
accatcgctc caggggtgga aatgatagtc gggcggactt acgcaactccc ggtccaagca
300
gcggataatg ctcctcctgc aaagcaaagg actcccatct gcactgtgta tattgaagtg
360
cttccaccaa ataatacaag ccctcctcgc ttcccacagc tgatgtatag ccttgaaatt
420
agtgaagcca tgagggttgg tgctgtttta ttaaacttac aggcaactga
470

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&lt;210&gt; 4226

&lt;211&gt; 156

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4226

```

Xaa Val Gln Glu Ser Glu Pro Val Ile Val Asn Ile Gln Val Met Asp
1          5          10          15
Ala Asn Asp Asn Thr Pro Thr Phe Pro Glu Ile Ser Tyr Asp Val Tyr
20        25        30
Val Tyr Thr Asp Met Arg Pro Gly Asp Arg Val Leu Gln Leu Thr Ala
35        40        45
Val Asp Ala Asp Glu Gly Ser Asn Gly Glu Ile Thr Tyr Glu Ile Leu
50        55        60
Val Gly Ala Gln Gly Asp Phe Ile Ile Asn Lys Thr Thr Gly Leu Ile

```

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Thr | Ile | Ala | Pro | Gly | Val | Glu | Met | Ile | Val | Gly | Arg | Thr | Tyr | Ala | Leu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Pro | Val | Gln | Ala | Ala | Asp | Asn | Ala | Pro | Pro | Ala | Lys | Gln | Arg | Thr | Pro |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ile | Cys | Thr | Val | Tyr | Ile | Glu | Val | Leu | Pro | Pro | Asn | Asn | Gln | Ser | Pro |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Pro | Arg | Phe | Pro | Gln | Leu | Met | Tyr | Ser | Leu | Glu | Ile | Ser | Glu | Ala | Met |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Arg | Val | Gly | Ala | Val | Leu | Leu | Asn | Leu | Gln | Ala | Thr |     |     |     |     |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     |     |

&lt;210&gt; 4227

&lt;211&gt; 1199

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4227

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nnaagcttat ggccagtgtt aatttggttat ttcttaaata actttccctt tcatttttaa
60
attataaatt taacttctaa catgttttat gggtaaaatt gtactttttt cctttagcga
120
cattcaaatg catcacaatc actttgtgaa attgttcgcc tgagcagaga ccagatgtta
180
caaattcaga acagtacaga gcccgacccc ctgcttgcca ctctagaaaa gcaagaaatt
240
atagagcagc ttctatcaaa tattttccac aaggagaaaa atgagtcagc catagtcagt
300
gcaatccaga tattgctgac tttacttgag acacgacgac caacatttga aggccatata
360
gagatctgcc caccagcat gagccattca gcttggttcag taaacaagag tgttctagaa
420
gccatcagag gaagacttgg atcttttcat gaactcctgc tggagccacc caagaaaagt
480
gtgatgaaga ccacatgggg tgtgctggat cctcctgtgg ggaatacccg gttgaatgtc
540
attaggttga tatccagcct gcttcaaacc aataccagca gtataaatgg ggaccttatg
600
gagctgaata gcattggagt catattgaac atgttcttca agtatacatg gaataacttt
660
ttgcatacac aagtggaaat ttgtattgca ctgattcttg caagtccttt tgaaaacaca
720
gaaaatgcca caattaccga tcaagactcc actggtgata atttgttatt aaaacatctt
780
ttccaaaaat gtcaattaat agaacgaata cttgaagcct gggaaatgaa tgagaagaaa
840
caggctgagg gaggaagacg gcatgggttac atgggacacc taacgaggat agctaactgt
900
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960
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<212> PRT

<213> Homo sapiens

<400> 4228

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| Arg | His | Ser | Asn | Ala | Ser | Gln | Ser | Leu | Cys | Glu | Ile | Val | Arg | Leu | Ser |
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| Arg | Asp | Gln | Met | Leu | Gln | Ile | Gln | Asn | Ser | Thr | Glu | Pro | Asp | Pro | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Ala | Thr | Leu | Glu | Lys | Gln | Glu | Ile | Ile | Glu | Gln | Leu | Leu | Ser | Asn |
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| Ile | Phe | His | Lys | Glu | Lys | Asn | Glu | Ser | Ala | Ile | Val | Ser | Ala | Ile | Gln |
|     |     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |
| Ile | Leu | Leu | Thr | Leu | Leu | Glu | Thr | Arg | Arg | Pro | Thr | Phe | Glu | Gly | His |
| 65  |     |     |     |     |     | 70  |     |     |     | 75  |     |     |     | 80  |     |
| Ile | Glu | Ile | Cys | Pro | Pro | Gly | Met | Ser | His | Ser | Ala | Cys | Ser | Val | Asn |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Lys | Ser | Val | Leu | Glu | Ala | Ile | Arg | Gly | Arg | Leu | Gly | Ser | Phe | His | Glu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Leu | Leu | Glu | Pro | Pro | Lys | Lys | Ser | Val | Met | Lys | Thr | Thr | Trp | Gly |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |
| Val | Leu | Asp | Pro | Pro | Val | Gly | Asn | Thr | Arg | Leu | Asn | Val | Ile | Arg | Leu |
|     |     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |
| Ile | Ser | Ser | Leu | Leu | Gln | Thr | Asn | Thr | Ser | Ser | Ile | Asn | Gly | Asp | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Met | Glu | Leu | Asn | Ser | Ile | Gly | Val | Ile | Leu | Asn | Met | Phe | Phe | Lys | Tyr |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Thr | Trp | Asn | Asn | Phe | Leu | His | Thr | Gln | Val | Glu | Ile | Cys | Ile | Ala | Leu |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ile | Leu | Ala | Ser | Pro | Phe | Glu | Asn | Thr | Glu | Asn | Ala | Thr | Ile | Thr | Asp |
|     |     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |
| Gln | Asp | Ser | Thr | Gly | Asp | Asn | Leu | Leu | Lys | His | Leu | Phe | Gln | Lys |     |
|     |     |     | 210 |     |     | 215 |     |     |     | 220 |     |     |     |     |     |
| Cys | Gln | Leu | Ile | Glu | Arg | Ile | Leu | Glu | Ala | Trp | Glu | Met | Asn | Glu | Lys |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Lys | Gln | Ala | Glu | Gly | Gly | Arg | Arg | His | Gly | Tyr | Met | Gly | His | Leu | Thr |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Arg | Ile | Ala | Asn | Cys | Ile | Val | His | Ser | Thr | Asp | Lys | Gly | Pro | Asn | Ser |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ala | Leu | Val | Gln | Gln | Leu | Ile | Lys | Gly | Lys | Leu | Phe | Val | Lys | Phe | Glu |
|     |     |     | 275 |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Leu | His | Phe | Cys | Trp | Val | Ala | Gly | Arg | Ile |     |     |     |     |     |     |
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<211> 1612

<212> DNA

<213> Homo sapiens



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| Xaa | Gly | Val | Ser | Ile | Leu | Asp | Gln | Asp | Leu | Asp | Tyr | Leu | Ser | Glu | Gly | 1   | 5   | 10  | 15  |
| Leu | Glu | Gly | Arg | Ser | Gln | Ser | Pro | Val | Ala | Leu | Leu | Phe | Asp | Ala | Leu | 20  | 25  | 30  |     |
| Leu | Arg | Pro | Asp | Thr | Asp | Phe | Gly | Gly | Asn | Met | Lys | Ser | Val | Leu | Thr | 35  | 40  | 45  |     |
| Trp | Lys | His | Arg | Lys | Glu | His | Ala | Ile | Pro | His | Val | Val | Leu | Gly | Arg | 50  | 55  | 60  |     |
| Asn | Leu | Pro | Gly | Gly | Ala | Trp | His | Ser | Ile | Glu | Gly | Ser | Met | Val | Ile | 65  | 70  | 75  | 80  |
| Leu | Ser | Gln | Gly | Gln | Trp | Met | Gly | Leu | Pro | Asp | Leu | Glu | Val | Lys | Asp | 85  | 90  | 95  |     |
| Trp | Met | Gln | Lys | Lys | Arg | Arg | Gly | Leu | Arg | Asn | Ser | Arg | Ala | Thr | Ala | 100 | 105 | 110 |     |
| Gly | Asp | Ile | Ala | His | Tyr | Tyr | Arg | Asp | Tyr | Val | Val | Lys | Lys | Gly | Leu | 115 | 120 | 125 |     |
| Gly | His | Asn | Phe | Val | Ser | Gly | Ala | Val | Val | Thr | Ala | Val | Glu | Trp | Gly | 130 | 135 | 140 |     |
| Thr | Pro | Asp | Pro | Ser | Ser | Cys | Gly | Ala | Gln | Asp | Ser | Ser | Pro | Leu | Phe | 145 | 150 | 155 | 160 |
| Gln | Val | Ser | Gly | Phe | Leu | Thr | Arg | Asn | Gln | Ala | Gln | Gln | Pro | Phe | Ser | 165 | 170 | 175 |     |
| Leu | Trp | Ala | Arg | Asn | Val | Val | Leu | Ala | Thr | Gly | Thr | Phe | Asp | Ser | Pro | 180 | 185 | 190 |     |
| Ala | Arg | Leu | Gly | Ile | Pro | Gly | Glu | Ala | Leu | Pro | Phe | Ile | His | His | Glu | 195 | 200 | 205 |     |
| Leu | Ser | Ala | Leu | Glu | Ala | Ala | Thr | Arg | Val | Gly | Ala | Val | Thr | Pro | Ala | 210 | 215 | 220 |     |
| Ser | Asp | Pro | Val | Leu | Ile | Gly | Ala | Gly | Leu | Ser | Ala | Ala | Asp | Ala |     | 225 | 230 | 235 | 240 |
| Val | Leu | Tyr | Ala | Arg | His | Tyr | Asn | Ile | Pro | Val | Ile | His | Ala | Phe | Arg | 245 | 250 | 255 |     |
| Arg | Ala | Val | Asp | Asp | Pro | Gly | Leu | Val | Phe | Asn | Gln | Leu | Pro | Lys | Met | 260 | 265 | 270 |     |
| Leu | Tyr | Pro | Glu | Tyr | His | Lys | Val | His | Gln | Met | Met | Arg | Glu | Gln | Ser | 275 | 280 | 285 |     |
| Ile | Leu | Ser | Pro | Ser | Pro | Tyr | Glu | Gly | Tyr | Arg | Ser | Leu | Pro | Arg | His | 290 | 295 | 300 |     |
| Gln | Leu | Leu | Cys | Phe | Lys | Glu | Asp | Cys | Gln | Ala | Val | Phe | Gln | Asp | Leu | 305 | 310 | 315 | 320 |
| Glu | Gly | Val | Glu | Lys | Val | Phe | Gly | Val | Ser | Leu | Val | Leu | Val | Leu | Ile | 325 | 330 | 335 |     |
| Gly | Ser | His | Pro | Asp | Leu | Ser | Phe | Leu | Pro | Gly | Ala | Gly | Ala | Asp | Phe | 340 | 345 | 350 |     |
| Ala | Val | Asp | Pro | Asp | Gln | Pro | Leu | Ser | Ala | Lys | Arg | Asn | Pro | Ile | Asp |     |     |     |     |

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<213> Homo sapiens

<400> 4232

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| Xaa | Thr | Thr | Asp | Thr | Asp | Gly | Ala | Ala | Glu | Thr | Cys | Val | Ser | Val | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Cys | Gln | Lys | Gln | Ile | Lys | Glu | Leu | Arg | Asp | Gln | Ile | Val | Ser | Val | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Glu | Lys | Lys | Ile | Leu | Ala | Ile | Glu | Leu | Glu | Asn | Leu | Lys | Ser | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Leu | Val | Glu | Val | Ile | Glu | Glu | Val | Asn | Lys | Val | Lys | Gln | Glu | Lys | Thr |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Val | Leu | Asn | Ser | Glu | Val | Leu | Glu | Gln | Arg | Lys | Val | Leu | Glu | Lys | Cys |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Asn | Arg | Val | Ser | Met | Leu | Ala | Val | Glu | Glu | Tyr | Glu | Glu | Met | Gln | Val |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Asn | Leu | Glu | Leu | Glu | Lys | Asp | Leu | Arg | Lys | Lys | Ala | Glu | Ser | Phe | Ala |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     |     | 110 |     |
| Gln | Glu | Met | Phe | Leu | Glu | Pro | Asn | Gln | Gly | Lys | Lys | Thr | Lys | Pro | Pro |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Phe | Gly | Arg | Gln | Ser | Ser | Ile | Leu | Asp | Gln | Gln | Leu | Ala | Leu | Asp | Glu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asn | Ala | Lys | Leu | Thr | Gln | Gln | Leu | Glu | Glu | Glu | Arg | Ile | Gln | His | Gln |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Gln | Lys | Val | Lys | Glu | Leu | Glu | Glu | Gln | Leu | Glu | Asn | Glu | Thr | Leu | His |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Lys | Glu | Ile | His | Asn | Leu | Lys | Gln | Gln | Leu | Glu | Leu | Leu | Glu | Glu | Asp |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Lys | Lys | Glu | Leu | Glu | Leu | Lys | Tyr | Gln | Asn | Ser | Glu | Glu | Lys | Ala | Arg |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |
| Asn | Leu | Lys | His | Ser | Val | Asp | Glu | Leu | Gln | Lys | Arg | Val | Asn | Gln | Ser |
|     | 210 |     |     |     |     | 215 |     |     |     |     |     |     | 220 |     |     |
| Glu | Asn | Ser | Val | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Leu | Pro | Pro |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     | 240 |     |
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| Gly | Ser | Leu | Lys | Gly | Asp | His | Ile | Leu | Tyr | His | Leu | Ile | Leu | Ile | Trp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Ile | Ile | Phe | Ile | Ser | His | Gln | Asp | Lys | Ile | Pro | Gly | Gly | Gly | Ile |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Cys | Lys | Val | His | Thr | Ser | Pro | Pro | Met | Tyr | Ser | Leu | Asp | Arg | Ile |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Phe | Ala | Gly | Phe | Arg | Thr | Arg | Ser | Gln | Met | Leu | Leu | Gly | His | Ile | Glu |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Glu | Gln | Asp | Lys | Val | Leu | His | Cys | Gln | Phe | Ser | Asp | Asn | Ser | Asp | Asp |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Glu | Glu | Ser | Glu | Gly | Gln | Glu | Lys | Ser | Gly | Thr | Arg | Cys | Arg | Ser | Arg |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Ser | Trp | Ile | Gln | Lys | Pro | Asp | Ser | Val | Cys | Ser | Leu | Val | Glu | Leu | Ser |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     | 110 |     |     |     |
| Asp | Thr | Gln | Asp | Glu | Thr | Gln | Lys | Ser | Asp | Leu | Glu | Asn | Glu | Asp | Leu |
|     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Lys | Ile | Asp | Cys | Leu | Gln | Glu | Ser | Gln | Glu | Leu | Asn | Leu | Gln | Lys | Leu |
|     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |
| Lys | Asn | Ser | Glu | Arg | Ile | Leu | Thr | Glu | Ala | Lys | Gln | Lys | Met | Arg | Glu |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |
| Leu | Thr | Val | Asn | Ile | Lys | Met | Lys | Glu | Asp | Leu | Ile | Lys | Glu | Leu | Ile |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Lys | Thr | Gly | Asn | Asp | Ala | Lys | Ser | Val | Ser | Lys | Gln | Tyr | Thr | Leu | Lys |
|     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| Val | Thr | Lys | Leu | Glu | His | Asp | Ala | Glu | Gln | Ala | Lys | Val | Glu | Leu | Thr |
|     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| Glu | Thr | Gln | Lys | Gln | Leu | Gln | Glu | Leu | Glu | Asn | Lys | Asp | Leu | Ser | Asp |

|   |     |     |
|---|-----|-----|
| 210   | 215 | 220 |
| Val Ala Met Lys Val Lys Leu Gln Lys Glu Phe Arg Lys Lys Val Asp |     |     |
| 225   | 230 | 235 |
| Ala Ala Lys Leu Arg Val Gln Val Leu Gln Lys Lys Gln Gln Asp Ser |     | 240 |
|   | 245 | 250 |
| Lys Lys Leu Ala Ser Leu Ser Ile Gln Asn Glu Lys Arg Ala Asn Glu |     | 255 |
|   | 260 | 265 |
| Leu Glu Gln Ser Val Asp His Met Lys Tyr Gln Lys Ile Gln Leu Gln |     | 270 |
|   | 275 | 280 |
| Arg Lys Leu Arg Glu Glu Asn Glu Lys Arg Lys Gln Leu Asp Ala Val |     | 285 |
|   | 290 | 295 |
| Ile Lys Arg Asp Gln Gln Lys Ile Lys Val Ile Gln Leu Lys Thr Gly |     | 300 |
| 305   | 310 | 315 |
| Gln Glu Glu Gly Leu Lys Pro Lys Ala Glu Asp Leu Asp Ala Cys Asn |     | 320 |
|   | 325 | 330 |
| Leu Lys Arg Arg Lys Gly Ser Phe Gly Ser Ile Asp His Leu Gln Lys |     | 335 |
|   | 340 | 345 |
| Leu Asp Glu Gln Lys Lys Trp Leu Asp Glu Glu Val Glu Lys Val Leu |     | 350 |
|   | 355 | 360 |
| Asn Gln Arg Gln Glu Leu Glu Glu Leu Glu Ala Asp Leu Lys Lys Arg |     | 365 |
|   | 370 | 375 |
| Glu Ala Ile Val Ser Lys Lys Glu Ala Leu Leu Gln Glu Lys Ser His |     | 380 |
| 385   | 390 | 395 |
| Leu Glu Asn Lys Lys Leu Arg Ser Ser Gln Ala Leu Asn Thr Asp Ser |     | 400 |
|   | 405 | 410 |
| Leu Lys Ile Ser Thr Arg Leu Asn Leu Leu Glu Gln Glu Leu Ser Glu |     | 415 |
|   | 420 | 425 |
| Lys Asn Val Gln Leu Gln Thr Ser Thr Ala Glu Glu Lys Thr Lys Ile |     | 430 |
|   | 435 | 440 |
| Ser Glu Gln Val Glu Val Leu Gln Lys Glu Lys Asp Gln Leu Gln Lys |     | 445 |
|   | 450 | 455 |
| Arg Arg His Asp Val Asp Glu Lys Leu Lys Asn Gly Arg Val Leu Ser |     | 460 |
| 465   | 470 | 475 |
| Pro Glu Glu Glu His Val Leu Phe Gln Leu Glu Glu Gly Ile Glu Ala |     | 480 |
|   | 485 | 490 |
| Leu Glu Ala Ala Ile Glu Tyr Arg Asn Glu Ser Ile Gln Asn Arg Gln |     | 495 |
|   | 500 | 505 |
| Lys Ser Leu Arg Ala Ser Phe His Asn Leu Ser Arg Gly Glu Ala Asn |     | 510 |
|   | 515 | 520 |
| Val Leu Glu Lys Leu Ala Cys Leu Ser Pro Val Glu Ile Arg Thr Ile |     | 525 |
|   | 530 | 535 |
| Leu Phe Arg Tyr Phe Asn Lys Val Val Asn Leu Arg Glu Ala Glu Arg |     | 540 |
| 545   | 550 | 555 |
| Lys Gln Gln Leu Tyr Asn Glu Glu Met Lys Met Lys Val Leu Glu Arg |     | 560 |
|   | 565 | 570 |
| Asp Asn Met Val Arg Glu Leu Glu Ser Ala Leu Asp His Leu Lys Leu |     | 575 |
|   | 580 | 585 |
| Gln Cys Asp Arg Arg Leu Thr Leu Gln Gln Lys Glu His Glu Gln Lys |     | 590 |
|   | 595 | 600 |
| Met Gln Leu Leu Leu His His Phe Lys Glu Gln Asp Gly Glu Gly Ile |     | 605 |
|   | 610 | 615 |
| Met Glu Thr Phe Lys Thr Tyr Glu Asp Lys Ile Gln Gln Leu Glu Lys |     | 620 |
| 625   | 630 | 635 |
| Asp Leu Tyr Phe Tyr Lys Lys Thr Ser Arg Asp His Lys Lys Lys Leu |     | 640 |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |  |  |  |  |
| Lys | Glu | Leu | Val | Gly | Glu | Ala | Ile | Arg | Arg | Gln | Leu | Ala | Ser | Ser | Glu |  |  |  |  |
|     |     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |  |  |  |  |
| Tyr | Gln | Glu | Ala | Gly | Asp | Gly | Val | Leu | Lys | Pro | Glu | Gly | Gly | Gly | Met |  |  |  |  |
|     |     | 675 |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |  |  |  |  |
| Leu | Ser | Glu | Glu | Leu | Lys | Trp | Ala | Ser | Arg | Pro | Glu | Ser | Met | Lys | Leu |  |  |  |  |
|     | 690 |     |     |     |     | 695 |     |     |     | 700 |     |     |     |     |     |  |  |  |  |
| Ser | Gly | Arg | Glu | Arg | Glu | Met | Asp | Ser | Ser | Ala | Ser | Ser | Leu | Arg | Thr |  |  |  |  |
| 705 |     |     |     | 710 |     |     |     |     |     | 715 |     |     |     |     | 720 |  |  |  |  |
| Gln | Pro | Asn | Pro | Gln | Lys | Leu | Trp | Glu | Asp | Ile | Pro | Glu | Leu | Pro | Pro |  |  |  |  |
|     |     |     | 725 |     |     |     |     | 730 |     |     |     |     |     | 735 |     |  |  |  |  |
| Ile | His | Ser | Ser | Leu | Ala | Pro | Pro | Ser | Gly | His | Met | Leu | Gly | Asn | Glu |  |  |  |  |
|     |     | 740 |     |     |     |     |     | 745 |     |     |     | 750 |     |     |     |  |  |  |  |
| Asn | Lys | Thr | Glu | Thr | Asp | Asp | Asn | Gln | Phe | Thr | Lys | Ser | His | Ser | Arg |  |  |  |  |
|     | 755 |     |     |     |     |     | 760 |     |     |     | 765 |     |     |     |     |  |  |  |  |
| Leu | Ser | Ser | Gln | Ile | Gln | Val | Val | Gly | Asn | Val | Gly | Arg | Leu | His | Gly |  |  |  |  |
|     | 770 |     |     |     | 775 |     |     |     |     | 780 |     |     |     |     |     |  |  |  |  |
| Val | Thr | Pro | Val | Lys | Leu | Cys | Arg | Lys | Glu | Leu | Arg | Gln | Ile | Ser | Ala |  |  |  |  |
| 785 |     |     |     |     | 790 |     |     |     |     | 795 |     |     |     |     | 800 |  |  |  |  |
| Leu | Glu | Leu | Ser | Leu | Arg | Arg | Ser | Ser | Leu | Gly | Val | Gly | Ile | Gly | Ser |  |  |  |  |
|     |     |     | 805 |     |     |     |     | 810 |     |     |     |     | 815 |     |     |  |  |  |  |
| Met | Ala | Ala | Asp | Ser | Ile | Glu | Val | Ser | Arg | Lys | Pro | Arg | Asp | Leu | Lys |  |  |  |  |
|     |     | 820 |     |     |     |     | 825 |     |     |     |     |     | 830 |     |     |  |  |  |  |
| Thr |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |

&lt;210&gt; 4235

&lt;211&gt; 971

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4235

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660

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 50 55 60  
 Ser Arg Gly Phe Glu Asn Leu Val Pro Tyr Thr Ser Thr Val Ser Val  
 65 70 75 80  
 Val Ala Thr Pro Val Met Thr Tyr Gly His Leu Glu Gly Leu Ile Asn  
 85 90 95  
 Glu Trp Asn Leu Glu Leu Glu Asp Gln Glu Lys Tyr Phe Leu Leu Gln  
 100 105 110  
 Ala Thr Gln Val Asn Ala Trp Asp His Thr Leu Ile Glu Asn Gly Glu  
 115 120 125  
 Met Ile Arg Ile Leu His Gly Glu Val Asn Lys Val Lys Leu Asp Gln  
 130 135 140  
 Lys Arg Leu Glu Gln Glu Leu Asp Phe Ile Leu Ser Gln Gln Gln Glu  
 145 150 155 160  
 Leu Glu Phe Leu Leu Thr Tyr Leu Glu Glu Ser Thr Arg Asp Gln Ser  
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<210> 4238

<211> 124

<212> PRT

<213> Homo sapiens

<400> 4238

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Ala | Gln | Ala | Ser | Glu | Asn | Cys | Leu | Ala | Ser | Val | Arg | Ser | Arg | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | His | Ser | Trp | Pro | Ser | Ser | Ser | Pro | Ser | Pro | His | Arg | Phe | Ser | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| His | Ser | Pro | Glu | Leu | Leu | Pro | Val | Pro | Ile | Leu | Asp | Ser | Leu | Ser | Cys |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Phe | Leu | Asp | Ser | Leu | Ser | Cys | Phe | Leu | Asp | Ser | Leu | Gln | Ile | Ala | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ala | Met | Gly | Val | Ala | Asp | Glu | Ala | Leu | Gly | Asn | Val | Arg | Thr | Val | Arg |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Ala | Phe | Ala | Met | Glu | Gln | Arg | Glu | Glu | Glu | Arg | Tyr | Gly | Ala | Glu | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Glu | Ala | Cys | Arg | Cys | Arg | Ala | Glu | Glu | Leu | Gly | Arg | Gly | Ile | Ala | Leu |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Phe | Gln | Gly | Leu | Ser | Asn | Ile | Ala | Phe | Asn | Cys | Glu |     |     |     |     |
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<210> 4239

<211> 3127

<212> DNA

<213> Homo sapiens

<400> 4239

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 120  
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 180

cctcggtcct tcaactctgag acgatcctca gcttccatca gtaggcagtc ccatttgag  
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aaaaaaa  
3127

&lt;210&gt; 4240

&lt;211&gt; 860

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4240

Met Thr Glu Gly Thr Lys Lys Thr Ser Lys Lys Phe Lys Phe Phe Lys

|     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|
| 1   |     | 5   |     | 10  |     | 15  |
| Phe | Lys | Gly | Phe | Gly | Ser | Leu |
|     |     | 20  |     | 25  |     | 30  |
| Arg | Arg | Ser | Ser | Ala | Ser | Ile |
|     |     | 35  |     | 40  |     | 45  |
| Thr | Phe | Glu | Ala | Thr | Gln | Asp |
|     |     | 50  |     | 55  |     | 60  |
| Pro | Ala | Tyr | Ala | Arg | Ser | Asp |
|     |     | 65  |     | 70  |     | 75  |
| Pro | Arg | Pro | Ser | Ile | Lys | Lys |
|     |     |     |     | 85  |     | 90  |
| Ala | Gln | Glu | Ala | Gly | Pro | Lys |
|     |     | 100 |     | 105 |     | 110 |
| Asp | Pro | Pro | Gly | Leu | Glu | Ala |
|     |     | 115 |     | 120 |     | 125 |
| Gly | Pro | Leu | Glu | Asp | Thr | Pro |
|     |     | 130 |     | 135 |     | 140 |
| Glu | Val | Asp | Pro | Ile | Arg | Lys |
|     |     | 145 |     | 150 |     | 155 |
| Glu | Glu | Arg | Pro | Pro | Arg | Asp |
|     |     |     |     | 165 |     | 170 |
| Pro | Glu | Ala | Gly | Ser | Asp | Tyr |
|     |     | 180 |     | 185 |     | 190 |
| Leu | Asp | Ser | Ser | Pro | Glu | Lys |
|     |     | 195 |     | 200 |     | 205 |
| Lys | Leu | Ser | Ser | Thr | Asp | Leu |
|     |     | 210 |     | 215 |     | 220 |
| Ile | Pro | Arg | Glu | Val | Ser | Glu |
|     |     | 225 |     | 230 |     | 235 |
| Leu | Ile | Arg | Asp | Ser | Leu | Thr |
|     |     |     |     | 245 |     | 250 |
| Arg | Trp | Arg | Asn | Gln | Ala | Leu |
|     |     | 260 |     | 265 |     | 270 |
| Lys | Ala | Gly | Glu | Ser | Tyr | Thr |
|     |     | 275 |     | 280 |     | 285 |
| Ser | Phe | Asp | His | Val | Pro | Ala |
|     |     | 290 |     | 295 |     | 300 |
| Lys | Ala | Val | Ser | Glu | Gln | Ser |
|     |     | 305 |     | 310 |     | 315 |
| Arg | Thr | Phe | Pro | Leu | Arg | Tyr |
|     |     |     |     | 325 |     | 330 |
| Gly | Ser | Ser | Lys | Pro | Ala | Ser |
|     |     |     |     | 340 |     | 345 |
| Ser | His | Met | Lys | Arg | Arg | Ser |
|     |     | 355 |     | 360 |     | 365 |
| Asp | Lys | Val | Thr | Arg | Ser | Asp |
|     |     | 370 |     | 375 |     | 380 |
| Arg | Pro | Arg | Asp | Ser | Ile | Arg |
|     |     | 385 |     | 390 |     | 395 |
| Pro | Asp | Leu | His | Ser | Pro | Met |
|     |     |     |     | 405 |     | 410 |
| Pro | Ala | Tyr | Ser | Thr | Val | Thr |
|     |     | 420 |     | 425 |     | 430 |
| Ser | Ala | Thr | Ala | Leu | Pro | Ala |

|   |     |     |
|---|-----|-----|
| 435   | 440 | 445 |
| Pro Gln Leu Cys Pro Gly Ser Ala Pro Lys Thr His Gly Glu Ser Asp |     |     |
| 450   | 455 | 460 |
| Lys Gly Pro His Thr Ser Pro Ser His Thr Leu Gly Lys Ala Ser Pro |     |     |
| 465   | 470 | 475 |
| Ser Pro Ser Leu Ser Ser Tyr Ser Asp Pro Asp Ser Gly His Tyr Cys |     | 480 |
|   | 485 | 490 |
| Gln Leu Gln Pro Pro Val Arg Gly Ser Arg Glu Trp Ala Ala Thr Glu |     | 495 |
|   | 500 | 505 |
| Thr Ser Ser Gln Gln Ala Arg Ser Tyr Gly Glu Arg Leu Lys Glu Leu |     | 510 |
|   | 515 | 520 |
| Ser Glu Asn Gly Ala Pro Glu Gly Asp Trp Gly Lys Thr Phe Thr Val |     | 525 |
|   | 530 | 535 |
| Pro Ile Val Glu Val Thr Ser Ser Phe Asn Pro Ala Thr Phe Gln Ser |     | 540 |
| 545   | 550 | 555 |
| Leu Leu Ile Pro Arg Asp Asn Arg Pro Leu Glu Val Gly Leu Leu Arg |     | 560 |
|   | 565 | 570 |
| Lys Val Lys Glu Leu Leu Ala Glu Val Asp Ala Arg Thr Leu Ala Arg |     | 575 |
|   | 580 | 585 |
| His Val Thr Lys Val Asp Cys Leu Val Ala Arg Ile Leu Gly Val Thr |     | 590 |
|   | 595 | 600 |
| Lys Glu Met Gln Thr Leu Met Gly Val Arg Trp Gly Met Glu Leu Leu |     | 605 |
|   | 610 | 615 |
| Thr Leu Pro His Gly Arg Gln Leu Arg Leu Asp Leu Leu Glu Arg Phe |     | 620 |
| 625   | 630 | 635 |
| His Thr Met Ser Ile Met Leu Ala Val Asp Ile Leu Gly Cys Thr Gly |     | 640 |
|   | 645 | 650 |
| Ser Ala Glu Glu Arg Ala Ala Leu Leu His Lys Thr Ile Gln Leu Ala |     | 655 |
|   | 660 | 665 |
| Ala Glu Leu Arg Gly Thr Met Gly Asn Met Phe Ser Phe Ala Ala Val |     | 670 |
|   | 675 | 680 |
| Met Gly Ala Leu Asp Met Ala Gln Ile Ser Arg Leu Glu Gln Thr Trp |     | 685 |
|   | 690 | 695 |
| Val Thr Leu Arg Gln Arg His Thr Glu Gly Ala Ile Leu Tyr Glu Lys |     | 700 |
| 705   | 710 | 715 |
| Lys Leu Lys Pro Phe Leu Lys Ser Leu Asn Glu Gly Lys Glu Gly Pro |     | 720 |
|   | 725 | 730 |
| Pro Leu Ser Asn Thr Thr Phe Pro His Val Leu Pro Leu Ile Thr Leu |     | 735 |
|   | 740 | 745 |
| Leu Glu Cys Asp Ser Ala Pro Pro Glu Gly Pro Glu Pro Trp Gly Ser |     | 750 |
|   | 755 | 760 |
| Thr Glu His Gly Val Glu Val Leu Ala His Leu Glu Ala Ala Arg     |     | 765 |
|   | 770 | 775 |
| Thr Val Ala His His Gly Gly Leu Tyr His Thr Asn Ala Glu Val Lys |     | 780 |
| 785   | 790 | 795 |
| Leu Gln Gly Phe Gln Ala Arg Pro Glu Leu Leu Glu Val Phe Ser Thr |     | 800 |
|   | 805 | 810 |
| Glu Phe Gln Met Arg Leu Leu Trp Gly Ser Gln Gly Ala Ser Ser Ser |     | 815 |
|   | 820 | 825 |
| Gln Ala Arg Arg Tyr Glu Lys Phe Asp Lys Val Leu Thr Ala Leu Ser |     | 830 |
|   | 835 | 840 |
| His Lys Leu Glu Pro Ala Val Arg Ser Ser Glu Leu                 |     | 845 |
| 850   | 855 | 860 |

<210> 4241  
 <211> 479  
 <212> DNA  
 <213> Homo sapiens

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 360  
 gccacctaca gcgcggacgg ggaagaccgc gcgaggtgtc cgcaggagcg cacacgtgtg  
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 <211> 159  
 <212> PRT  
 <213> Homo sapiens

<400> 4242  
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 20 25 30  
 Cys Trp Lys Val Ser Pro His Ile Lys Met Asp Leu Leu Gln Trp Ile  
 35 40 45  
 Gln Ser Lys Thr Gln Ser Asp Gly Ser Thr Leu Gln Gln Gly Ser Leu  
 50 55 60  
 Glu Phe Phe Ser Cys Leu Tyr Glu Ile Gln Glu Glu Phe Ile Gln  
 65 70 75 80  
 Gln Ala Leu Ser His Phe Gln Val Ile Val Val Ser Asn Ile Ala Ser  
 85 90 95  
 Lys Met Glu His Met Val Ser Ser Phe Cys Leu Lys Arg Cys Arg Ser  
 100 105 110  
 Ala Gln Val Leu His Leu Tyr Gly Ala Thr Tyr Ser Ala Asp Gly Glu  
 115 120 125  
 Asp Arg Ala Arg Cys Pro Gln Glu Arg Thr Arg Cys Trp Cys Ser Tyr  
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 Gln Arg Gly Pro Phe Cys Trp Thr Pro Thr Val Asn Ile Trp Gln  
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<210> 4243  
 <211> 3159  
 <212> DNA  
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 <212> PRT  
 <213> Homo sapiens

<400> 4244  
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 Ala Glu Phe Glu Arg Thr Tyr Val Asp Glu Val Asn Ser Glu Leu Val  
 35 40 45  
 Asn Ile Tyr Thr Phe Asn His Thr Val Thr Arg Asn Arg Thr Glu Gly  
 50 55 60  
 Val Arg Val Ser Val Asn Val Leu Asn Lys Gln Lys Gly Ala Pro Leu  
 65 70 75 80  
 Leu Phe Val Val Arg Gln Lys Glu Ala Val Val Ser Phe Gln Val Pro  
 85 90 95  
 Leu Ile Leu Arg Gly Met Phe Gln Arg Lys Tyr Leu Tyr Gln Lys Val  
 100 105 110  
 Glu Arg Thr Leu Cys Gln Pro Pro Thr Lys Asn Glu Ser Glu Ile Gln  
 115 120 125  
 Phe Phe Tyr Val Asp Val Ser Thr Leu Ser Pro Val Asn Thr Thr Tyr  
 130 135 140  
 Gln Leu Arg Val Ser Arg Met Asp Asp Phe Val Leu Arg Thr Gly Glu  
 145 150 155 160  
 Gln Phe Ser Phe Asn Thr Thr Ala Ala Gln Pro Gln Tyr Phe Lys Tyr  
 165 170 175  
 Glu Phe Pro Glu Gly Val Asp Ser Val Ile Val Lys Val Thr Ser Asn  
 180 185 190  
 Lys Ala Phe Pro Cys Ser Val Ile Ser Ile Gln Asp Val Leu Cys Pro  
 195 200 205  
 Val Tyr Asp Leu Asp Asn Asn Val Ala Phe Ile Gly Met Tyr Gln Thr  
 210 215 220  
 Met Thr Lys Lys Ala Ala Ile Thr Val Gln Arg Lys Asp Phe Pro Ser  
 225 230 235 240  
 Asn Ser Phe Tyr Val Val Val Val Lys Thr Glu Asp Gln Ala Cys  
 245 250 255  
 Gly Gly Ser Leu Pro Phe Tyr Pro Phe Ala Glu Asp Glu Pro Val Asp  
 260 265 270  
 Gln Gly His Arg Gln Lys Thr Leu Ser Val Leu Val Ser Gln Ala Val  
 275 280 285  
 Thr Ser Glu Ala Tyr Val Ser Gly Met Leu Phe Cys Leu Gly Ile Phe  
 290 295 300  
 Leu Ser Phe Tyr Leu Leu Thr Val Leu Leu Ala Cys Trp Glu Asn Trp  
 305 310 315 320  
 Arg Gln Lys Lys Lys Thr Leu Leu Val Ala Ile Asp Arg Ala Cys Pro  
 325 330 335  
 Glu Ser Ala Ser Leu Leu Gly His Pro Arg Val Leu Ala Asp Ser Phe  
 340 345 350  
 Pro Gly Ser Ser Pro Tyr Glu Gly Tyr Asn Tyr Gly Ser Phe Glu Asn  
 355 360 365  
 Val Ser Gly Ser Thr Asp Gly Leu Val Asp Ser Ala Gly Thr Gly Asp

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      370      375      380
Leu Ser Tyr Gly Tyr Gln Gly His Asp Gln Phe Lys Arg Arg Leu Pro
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Ser Gly Gln Met Arg Gln Leu Cys Ile Ala Met Gly Arg Ser Phe Glu
      405      410      415
Pro Val Gly Thr Arg Pro Arg Val Asp Ser Met Ser Ser Val Glu Glu
      420      425      430
Asp Asp Tyr Asp Thr Leu Thr Asp Ile Asp Ser Asp Lys Asn Val Ile
      435      440      445
Arg Thr Lys Gln Tyr Leu Tyr Val Ala Asp Leu Ala Arg Lys Asp Lys
      450      455      460
Arg Val Leu Arg Lys Lys Tyr Gln Ile Tyr Phe Trp Asn Ile Ala Thr
465      470      475      480
Ile Ala Val Phe Tyr Ala Leu Pro Val Val Gln Leu Val Ile Thr Tyr
      485      490      495
Gln Thr Val Val Asn Val Thr Gly Asn Gln Asp Ile Cys Tyr Tyr Asn
      500      505      510
Phe Leu Cys Ala His Pro Leu Gly Asn Leu Ser Ala Phe Asn Asn Ile
      515      520      525
Leu Ser Asn Leu Gly Tyr Ile Leu Leu Gly Leu Leu Phe Leu Leu Ile
      530      535      540
Ile Leu Gln Arg Glu Ile Asn His Asn Arg Ala Leu Leu Arg Asn Asp
545      550      555      560
Leu Cys Ala Leu Glu Cys Gly Ile Pro Lys His Phe Gly Leu Phe Tyr
      565      570      575
Ala Met Gly Thr Ala Leu Met Met Glu Gly Leu Leu Ser Ala Cys Tyr
      580      585      590
His Val Cys Pro Asn Tyr Thr Asn Phe Gln Phe Asp Thr Ser Phe Met
      595      600      605
Tyr Met Ile Ala Gly Leu Cys Met Leu Lys Leu Tyr Gln Lys Arg His
      610      615      620
Pro Asp Ile Asn Ala Ser Ala Tyr Ser Ala Tyr Ala Cys Leu Ala Ile
625      630      635      640
Val Ile Phe Phe Ser Val Leu Gly Val Val Phe Gly Lys Gly Asn Thr
      645      650      655
Ala Phe Trp Ile Val Phe Ser Ile Ile His Ile Ile Ala Thr Leu Leu
      660      665      670
Leu Ser Thr Gln Leu Tyr Tyr Met Gly Arg Trp Lys Leu Asp Ser Gly
      675      680      685
Ile Phe Arg Arg Ile Leu His Val Leu Tyr Thr Asp Cys Ile Arg Gln
      690      695      700
Cys Ser Gly Pro Leu Tyr Val Asp Arg Met Val Leu Leu Val Met Gly
705      710      715      720
Asn Val Ile Asn Trp Ser Leu Ala Ala Tyr Gly Leu Ile Met Arg Pro
      725      730      735
Asn Asp Phe Ala Ser Tyr Leu Leu Ala Ile Gly Ile Cys Asn Leu Leu
      740      745      750
Leu Tyr Phe Ala Phe Tyr Ile Ile Met Lys Leu Arg Ser Gly Glu Arg
      755      760      765
Ile Lys Leu Ile Pro Leu Leu Cys Ile Val Cys Thr Ser Val Val Trp
      770      775      780
Gly Phe Ala Leu Phe Phe Phe Gln Gly Leu Ser Thr Trp Gln Lys
785      790      795      800
Thr Pro Ala Glu Ser Arg Glu His Asn Arg Asp Cys Ile Leu Leu Asp

```

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
|     |     |     |     | 805 |     |     |     |     | 810 |     |     |     | 815 |     |     |  |
| Phe | Phe | Asp | Asp | His | Asp | Ile | Trp | His | Phe | Leu | Ser | Ser | Ile | Ala | Met |  |
|     |     |     | 820 |     |     |     |     | 825 |     |     |     |     | 830 |     |     |  |
| Phe | Gly | Ser | Phe | Leu | Val | Ser | Gly | Pro | Pro | Gly | Ala | Ala | Leu | Arg | Ile |  |
|     |     | 835 |     |     |     |     | 840 |     |     |     |     |     | 845 |     |     |  |
| Thr |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |

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 <212> DNA  
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<210> 4246  
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 <212> PRT  
 <213> Homo sapiens

<400> 4246  
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| Asn Ala Gly Glu Glu Cys Lys Ser Leu Arg Gly Gln Leu Glu Glu Gln |     |     |     |
| 35  | 40  | 45  |     |
| Gly Arg Gln Leu Gln Ala Ala Glu Glu Ala Val Glu Lys Leu Lys Ala |     |     |     |
| 50  | 55  | 60  |     |
| Thr Gln Ala Asp Met Gly Glu Lys Leu Ser Cys Thr Ser Asn His Leu |     |     |     |
| 65  | 70  | 75  | 80  |
| Ala Glu Cys Gln Ala Ala Met Leu Arg Lys Asp Lys Glu Gly Ala Ala |     |     |     |
| 85  | 90  | 95  |     |
| Leu Arg Glu Asp Leu Glu Arg Thr Gln Lys Glu Leu Glu Lys Ala Thr |     |     |     |
| 100   | 105 | 110 |     |
| Thr Lys Ile Gln Glu Tyr Tyr Asn Lys Leu Cys Gln Glu Val Thr Asn |     |     |     |
| 115   | 120 | 125 |     |
| Arg Glu Arg Asn Asp Gln Lys Met Leu Ala Asp Leu Asp Asp Leu Asn |     |     |     |
| 130   | 135 | 140 |     |
| Arg Thr Lys Lys Tyr Leu Glu Glu Arg Leu Ile Glu Leu Leu Arg Asp |     |     |     |
| 145   | 150 | 155 | 160 |
| Lys Asp Ala Leu Trp Gln Lys Ser Asp Ala Leu Glu Phe Gln Gln Lys |     |     |     |
| 165   | 170 | 175 |     |
| Leu Ser Ala Glu Glu Arg Trp Leu Gly Asp Thr Glu Ala Asn His Cys |     |     |     |
| 180   | 185 | 190 |     |
| Leu Asp Cys Lys Arg Glu Phe Ser Trp Met Val Arg Arg His His Cys |     |     |     |
| 195   | 200 | 205 |     |
| Arg Ile Cys Gly Arg Ile Phe Cys Tyr Tyr Cys Cys Asn Asn Tyr Val |     |     |     |
| 210   | 215 | 220 |     |
| Leu Ser Lys His Gly Gly Lys Lys Glu Arg Cys Cys Arg Ala Cys Phe |     |     |     |
| 225   | 230 | 235 | 240 |
| Gln Lys Leu Ser Glu Gly Pro Gly Ser Pro Asp Ser Ser Gly Ser Gly |     |     |     |
| 245   | 250 | 255 |     |
| Thr Ser Gln Gly Glu Leu Ser Pro Ala Leu Ser Pro Ala Ser Pro Gly |     |     |     |
| 260   | 265 | 270 |     |
| Pro Gln Ala Thr Gly Gly Gln Gly Ala Asn Thr Asp Tyr Arg Pro Pro |     |     |     |
| 275   | 280 | 285 |     |
| Asp Asp Ala Val Phe Asp Ile Ile Thr Asp Glu Glu Leu Cys Gln     |     |     |     |
| 290   | 295 | 300 |     |

&lt;210&gt; 4247

&lt;211&gt; 5755

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4247

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240  
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| Leu Trp Arg Ser Thr Asp | Tyr Gly Thr Thr Tyr | Glu Lys Leu Asn Asp     |
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| Thr Phe Tyr Ile Gln Ser | Leu Leu Phe His Pro | Lys Gln Glu Asp Trp     |
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| Val Leu Ala Tyr Ser Leu | Asp Gln Lys Leu Tyr | Ser Ser Met Asp Phe     |
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| Tyr Trp Ser Val Ala Gly | Leu Asp Lys Glu Ala | Asp Leu Val His Met     |
| 420                     | 425                 | 430                     |
| Glu Val Arg Thr Thr Asp | Gly Tyr Ala His Tyr | Leu Thr Cys Arg Ile     |
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| Gln Glu Cys Ala Glu Thr | Thr Arg Ser Gly Pro | Phe Ala Arg Ser Ile     |
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| Asp Ile Ser Ser Leu Val | Val Gln Asp Glu Tyr | Ile Phe Ile Gln Val     |
| 465                     | 470                 | 475                     |
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| Phe Ala Gln Ile Lys Leu | Pro Lys Tyr Ser Leu | Pro Lys Asp Met His     |
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| Ile Ile Ser Thr Asp Glu | Asn Gln Val Phe Ala | Ala Val Gln Glu Trp     |
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| Asn Gln Asn Asp Thr Tyr | Asn Leu Tyr Ile Ser | Asp Thr Arg Gly Ile     |
| 530                     | 535                 | 540                     |
| Tyr Phe Thr Leu Ala Met | Glu Asn Ile Lys Ser | Ser Ser Arg Gly Leu Met |
| 545                     | 550                 | 555                     |
| Gly Asn Ile Ile Ile Glu | Leu Tyr Glu Val Ala | Gly Ile Lys Gly Ile     |
| 565                     | 570                 | 575                     |
| Phe Leu Ala Asn Lys Lys | Val Asp Asp Gln Val | Lys Thr Tyr Ile Thr     |
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| Leu Arg Gly Ser Pro Val | His Cys Leu Leu Pro | Phe Cys Ser Leu His     |
| 610                     | 615                 | 620                     |
| Leu His Leu Gln Leu Ser | Glu Asn Pro Tyr Ser | Ser Gly Arg Ile Ser     |
| 625                     | 630                 | 635                     |
| Ser Lys Glu Thr Ala Pro | Gly Leu Val Val Ala | Thr Gly Asn Ile Gly     |

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|     |     | 675 |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |  |
| Leu | Asp | Trp | Gly | Gly | Ala | Leu | Val | Ala | Met | Lys | His | Thr | Pro | Leu | Pro |  |
|     | 690 |     |     |     |     | 695 |     |     |     | 700 |     |     |     |     |     |  |
| Val | Arg | His | Leu | Trp | Val | Ser | Phe | Asp | Glu | Gly | His | Ser | Trp | Asp | Lys |  |
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| Tyr | Gly | Phe | Thr | Ser | Val | Pro | Leu | Phe | Val | Asp | Gly | Ala | Leu | Val | Glu |  |
|     |     |     | 725 |     |     |     |     |     | 730 |     |     |     |     | 735 |     |  |
| Ala | Gly | Met | Glu | Thr | His | Ile | Met | Thr | Val | Phe | Gly | His | Phe | Ser | Leu |  |
|     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |     |     |  |
| Arg | Ser | Glu | Trp | Gln | Leu | Val | Lys | Val | Asp | Tyr | Lys | Ser | Ile | Phe | Ser |  |
|     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |     |     |     |  |
| Arg | His | Cys | Thr | Lys | Glu | Asp | Tyr | Gln | Thr | Trp | His | Leu | Leu | Asn | Gln |  |
|     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |     |     |     |     |  |
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| 785 |     |     |     | 790 |     |     |     |     |     | 795 |     |     |     |     | 800 |  |
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|     |     | 820 |     |     |     |     |     | 825 |     |     |     |     | 830 |     |     |  |
| Tyr | Glu | Arg | His | Gly | Glu | Ser | Gln | Cys | Val | Pro | Ala | Phe | Trp | Tyr | Asn |  |
|     |     | 835 |     |     |     |     | 840 |     |     |     |     | 845 |     |     |     |  |
| Pro | Ala | Ser | Pro | Ser | Lys | Asp | Cys | Ser | Leu | Gly | Gln | Ser | Tyr | Leu | Asn |  |
|     | 850 |     |     |     |     | 855 |     |     |     |     | 860 |     |     |     |     |  |
| Ser | Thr | Gly | Tyr | Arg | Arg | Ile | Val | Ser | Asn | Asn | Cys | Thr | Asp | Gly | Leu |  |
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| Arg | Gly | Leu | His | Val | Val | Thr | Thr | Asp | Gly | Arg | Leu | Val | Ala | Glu | Gln |  |
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|     | 915 |     |     |     |     | 920 |     |     |     |     |     | 925 |     |     |     |  |
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|     | 930 |     |     |     |     | 935 |     |     |     |     | 940 |     |     |     |     |  |
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| 945 |     |     |     | 950 |     |     |     |     |     | 955 |     |     |     |     | 960 |  |
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Gln Phe Glu Leu Lys Pro Gly Val Gln Val Ile Val Tyr Val Thr Gln
      1170      1175      1180
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Ser Glu Asn Ala Pro Lys Ile Thr Leu Ser Asp Phe Thr Glu Pro Glu
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&lt;211&gt; 553

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&lt;210&gt; 4252

&lt;211&gt; 352

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4252

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Val | Gly | Arg | Gly | Pro | Val | Glu | Pro | Ile | Thr | Ser | Leu | His | Ile |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Thr | Asp | Pro | Asp | Pro | Glu | Ser | Gln | Glu | Leu | Gln | Ile | Gly | Gly | Thr | Cys |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Pro | Asp | Ile | Thr | Lys | Arg | Tyr | Leu | Arg | Leu | Thr | Cys | Ala | Pro | Asp | Pro |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ser | Thr | Val | Arg | Pro | Val | Ala | Val | Leu | Lys | Lys | Ser | Leu | Cys | Met | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Lys | Cys | His | Trp | Lys | Glu | Lys | Gln | Asp | Tyr | Ala | Phe | Ala | Cys | Glu | Gln |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Met | Lys | Ser | Ile | Arg | Gln | Asp | Leu | Thr | Val | Gln | Gly | Ile | Arg | Thr | Glu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Phe | Thr | Val | Glu | Val | Tyr | Glu | Thr | His | Ala | Arg | Ile | Ala | Leu | Glu | Lys |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gly | Asp | His | Glu | Glu | Phe | Asn | Gln | Cys | Gln | Thr | Gln | Leu | Lys | Ser | Leu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Tyr | Ala | Glu | Asn | Leu | Pro | Gly | Asn | Val | Gly | Glu | Phe | Thr | Ala | Tyr | Arg |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ile | Leu | Tyr | Tyr | Ile | Phe | Thr | Lys | Asn | Ser | Gly | Asp | Ile | Thr | Thr | Glu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Leu | Ala | Tyr | Leu | Thr | Arg | Glu | Leu | Lys | Ala | Asp | Pro | Cys | Val | Ala | His |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ala | Leu | Ala | Leu | Arg | Thr | Ala | Trp | Ala | Leu | Gly | Asn | Tyr | His | Arg | Phe |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Phe | Arg | Leu | Tyr | Cys | His | Ala | Pro | Cys | Met | Ser | Gly | Tyr | Leu | Val | Asp |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Lys | Phe | Ala | Asp | Arg | Glu | Arg | Lys | Val | Ala | Leu | Lys | Ala | Met | Ile | Lys |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Thr | Tyr | Val | Val | Pro | Ser | Ser | Leu | Leu | Pro | Leu | Leu | Phe | Pro | Ser | Phe |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Arg | Leu | Ala | Pro | Pro | Leu | Arg | Pro | Ala | Pro | Gly | Arg | Arg | Pro | Pro | Pro |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ala | Pro | Asn | Pro | Cys | Pro | Gly | Pro | Cys | Phe | Pro | Ile | Ile | Phe | Leu | His |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Ser | Ala | Leu | Pro | Ser | Pro | Val | Pro | Leu | Ala | Leu | Leu | Val | Gly | His | Leu |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Cys | Val | Pro | Gly | His | Ser | Ser | Pro | Ser | Pro | His | Cys | Ser | Gln | Leu | Thr |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Ala | Ser | Gly | Ala | Ser | Ser | Pro | Pro | His | Leu | Cys | Val | Ser | Ser | Ser | Cys |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Ser | Leu | Leu | Pro | Gly | Pro | Pro | Ser | Ser | Leu | Leu | Ala | Leu | Gly | Phe | Leu |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |     |
| Arg | Thr | Leu | Arg | Ser | Leu | Leu | Ser | Gln | Leu | Val | Ala | Val | Leu | Pro | Pro |
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&lt;210&gt; 4253

&lt;211&gt; 1287

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4253

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&lt;210&gt; 4254

&lt;211&gt; 114

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4254

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Val | Ser | Leu | Trp | Val | Glu | Gly | Thr | Phe | Pro | Pro | Pro | Gly | Phe | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Ala | His | Val | Ala | Cys | Ser | Gly | His | Gly | Met | Lys | Gln | Lys | Arg | Lys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Pro | Ala | Ser | Ser | Glu | Pro | Met | Pro | Glu | Asp | Ala | Leu | Gly | Gly | Ser | Ala |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |
| Val | Pro | Val | Arg | Phe | His | Leu | His | Pro | Glu | Gly | Leu | Leu | Trp | Cys | Ser |
|     |     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |
| Arg | Cys | Phe | Phe | Ser | His | Gly | Pro | Lys | Gly | Ser | Glu | Pro | Pro | Gly | Arg |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ser | Ala | Gly | Leu | Gln | Gly | Ala | Thr | Glu | Arg | Ser | Gly | Arg | Pro | Ser | Val |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gln | Ala | Gln | Ala | Gln | Ala | Cys | Glu | Asn | Leu | Val | Pro | Ala | Thr | Val | Trp |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asp | Gly |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

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<212> DNA  
<213> Homo sapiens

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180  
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240  
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300  
atccagtaca cagctgtcct ctgggcacac tgtggctgtg atgggcattg acttcacact  
360  
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420  
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 1500  
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&lt;210&gt; 4256

&lt;211&gt; 384

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4256

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Thr | Ser | His | Val | Thr | Asp | Glu | Trp | Met | Thr | Gln | Met | Glu | Met |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Ser | Leu | Asn | Thr | Tyr | Ile | Val | Arg | Cys | Ile | Ala | Thr | Pro | Asn |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Gly | Val | Leu | Arg | Ile | Tyr | Ser | Gly | Ser | Leu | Met | Gly | Gln | Ala | Leu | Asp |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Pro | Thr | Arg | Lys | Gln | Trp | Tyr | Leu | His | Ala | Val | Ala | Asn | Pro | Gly | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ile | Ser | Leu | Thr | Gly | Pro | Tyr | Leu | Asp | Val | Gly | Gly | Ala | Gly | Tyr | Val |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Val | Thr | Ile | Ser | His | Thr | Ile | His | Ser | Ser | Ser | Thr | Gln | Leu | Ser | Ser |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Gly | His | Thr | Val | Ala | Val | Met | Gly | Ile | Asp | Phe | Thr | Leu | Arg | Tyr | Phe |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Tyr | Lys | Val | Leu | Met | Asp | Leu | Leu | Pro | Val | Cys | Asn | Gln | Asp | Gly | Gly |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Asn | Lys | Ile | Arg | Cys | Phe | Ile | Met | Glu | Asp | Arg | Gly | Tyr | Leu | Val | Ala |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| His | Pro | Thr | Leu | Ile | Asp | Pro | Lys | Gly | His | Ala | Pro | Val | Glu | Gln | Gln |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 145 |     | 150 |     | 155 |     | 160 |     |     |     |     |     |     |     |     |     |
| His | Ile | Thr | His | Lys | Glu | Pro | Leu | Val | Ala | Asn | Asp | Ile | Leu | Asn | His |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Pro | Asn | Phe | Val | Lys | Lys | Asn | Leu | Cys | Asn | Ser | Phe | Ser | Asp | Arg | Thr |
|     |     |     | 180 |     |     |     |     |     | 185 |     |     |     | 190 |     |     |
| Val | Gln | Arg | Phe | Tyr | Lys | Phe | Asn | Thr | Ser | Leu | Ala | Gly | Asp | Leu | Thr |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Asn | Leu | Val | His | Gly | Ser | His | Cys | Ser | Lys | Tyr | Arg | Leu | Ala | Arg | Ile |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Pro | Gly | Thr | Asn | Ala | Phe | Val | Gly | Ile | Val | Asn | Glu | Thr | Cys | Asp | Ser |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Leu | Ala | Phe | Cys | Ala | Cys | Ser | Met | Val | Asp | Arg | Leu | Cys | Leu | Asn | Cys |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| His | Arg | Met | Glu | Gln | Asn | Glu | Cys | Glu | Cys | Pro | Cys | Glu | Cys | Pro | Leu |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     | 270 |     |     |     |
| Glu | Val | Asn | Glu | Cys | Thr | Gly | Asn | Leu | Thr | Asn | Ala | Glu | Asn | Arg | Asn |
|     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |
| Pro | Ser | Cys | Glu | Val | His | Gln | Glu | Pro | Val | Thr | Tyr | Thr | Ala | Ile | Asp |
|     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |     |
| Pro | Gly | Leu | Gln | Asp | Ala | Leu | His | Gln | Cys | Val | Asn | Ser | Arg | Cys | Ser |
| 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |     |
| Gln | Arg | Leu | Glu | Ser | Gly | Asp | Cys | Phe | Gly | Val | Leu | Asp | Cys | Glu | Trp |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |
| Cys | Met | Val | Asp | Ser | Asp | Gly | Lys | Thr | His | Leu | Asp | Lys | Pro | Tyr | Cys |
|     |     | 340 |     |     |     |     | 345 |     |     |     | 350 |     |     |     |     |
| Ala | Pro | Gln | Lys | Glu | Cys | Phe | Gly | Ile | Val | Gly | Ala | Lys | Ser | Pro |     |
|     | 355 |     |     |     |     | 360 |     |     |     | 365 |     |     |     |     |     |
| Tyr | Val | Asp | Asp | Met | Gly | Ala | Ile | Gly | Asp | Glu | Val | Ile | Thr | Leu | Lys |
|     | 370 |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |     |

&lt;210&gt; 4257

&lt;211&gt; 1541

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4257

```

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&lt;210&gt; 4258

&lt;211&gt; 314

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4258

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ile | Phe | Met | Ala | Arg | Asp | Phe | Ala | Thr | Pro | Ser | Leu | His | Thr | Ser |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Asp | Gln | Ser | Pro | Gly | Lys | His | Met | Val | Thr | Met | Asp | Gly | Val | Arg | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Asp | Leu | Ala | Pro | Phe | Ser | Leu | Arg | Lys | Arg | Trp | Glu | Ser | Glu | Pro |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |
| His | Pro | Tyr | Val | Phe | Phe | Asn | Asp | Asp | His | Thr | Thr | Met | Thr | Phe | Ile |
|     |     |     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |
| Gly | Phe | His | Leu | Gln | Pro | Asn | Ile | Asn | Gly | Ser | Val | Asp | Ala | Ile | Ser |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| His | Leu | Thr | Gly | Lys | Val | Ile | Lys | Arg | Asp | Val | Met | Thr | Arg | Asp | Leu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Tyr | Gln | Gly | Leu | Leu | Leu | Gln | Arg | Val | Pro | Phe | Asn | Val | Asp | Phe | Asp |

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<210> 4260
<211> 125
<212> PRT
<213> Homo sapiens
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&lt;400&gt; 4260

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          20          25          30
Glu Gln Lys Cys Val Lys Cys Lys Glu Ala Gln Pro Val Val Val Ile
          35          40          45
Arg Ala Gly Asp Ala Phe Cys Arg Asp Cys Phe Lys Ala Phe Tyr Val
          50          55          60
His Lys Phe Arg Ala Met Leu Gly Lys Asn Arg Leu Ile Phe Pro Gly
65           70           75           80
Glu Lys Val Leu Leu Ala Trp Ser Gly Gly Pro Ser Ser Ser Ser Met
          85          90          95
Val Trp Gln Val Leu Glu Gly Leu Ser Gln Asp Ser Ala Lys Arg Leu
          100         105         110
Arg Phe Val Ala Gly Val Ile Phe Val Asp Glu Gly Ala
          115         120         125

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&lt;210&gt; 4261

&lt;211&gt; 592

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4261

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592

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&lt;210&gt; 4262

&lt;211&gt; 156

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4262

```

Ile Leu Arg Ser Thr Leu Val Asn Lys Glu Pro Asp Ser Met Leu Ala
 1           5           10           15
His Met Phe Lys Asp Lys Gly Val Trp Gly Asn Lys Gln Asp His Arg

```

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 20  |     | 25  |     | 30  |     |     |     |     |     |     |     |     |     |     |
| Gly | Ala | Phe | Leu | Ile | Asp | Arg | Ser | Pro | Glu | Tyr | Phe | Glu | Pro | Ile | Leu |
|     | 35  |     | 40  |     | 45  |     |     |     |     |     |     |     |     |     |     |
| Asn | Tyr | Leu | Arg | His | Gly | Gln | Leu | Ile | Val | Asn | Asp | Gly | Ile | Asn | Leu |
|     | 50  |     | 55  |     | 60  |     |     |     |     |     |     |     |     |     |     |
| Leu | Gly | Val | Leu | Glu | Glu | Ala | Arg | Phe | Phe | Gly | Ile | Asp | Ser | Leu | Ile |
| 65  |     |     | 70  |     | 75  |     |     |     |     |     |     |     |     | 80  |     |
| Glu | His | Leu | Glu | Val | Ala | Ile | Lys | Asn | Ser | Gln | Pro | Pro | Glu | Asp | His |
|     |     |     | 85  |     | 90  |     |     |     |     |     |     |     |     | 95  |     |
| Ser | Pro | Ile | Ser | Arg | Lys | Glu | Phe | Val | Arg | Phe | Leu | Leu | Ala | Thr | Pro |
|     | 100 |     | 105 |     | 110 |     |     |     |     |     |     |     |     |     |     |
| Thr | Lys | Ser | Glu | Leu | Arg | Cys | Gln | Gly | Leu | Asn | Phe | Ser | Gly | Ala | Asp |
|     | 115 |     | 120 |     | 125 |     |     |     |     |     |     |     |     |     |     |
| Leu | Ser | Arg | Leu | Asp | Leu | Arg | Tyr | Ile | Asn | Phe | Lys | Met | Ala | Asn | Leu |
|     | 130 |     | 135 |     | 140 |     |     |     |     |     |     |     |     |     |     |
| Ser | Arg | Cys | Asn | Leu | Ala | His | Ala | Asn | Leu | Cys | Cys |     |     |     |     |
| 145 |     |     | 150 |     | 155 |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4263

&lt;211&gt; 7710

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4263

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<211> 797

<212> PRT

<213> Homo sapiens

<400> 4264

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Arg | Asn | Leu | Phe | Leu | Lys | Ala | Phe | Thr | Asp | Phe | Leu | Ala | Phe | Met |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Leu | Phe | Asn | Tyr | Ile | Ile | Pro | Val | Ser | Met | Tyr | Val | Thr | Val | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Met | Gln | Lys | Phe | Leu | Gly | Ser | Tyr | Phe | Ile | Thr | Trp | Asp | Glu | Asp | Met |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Phe | Asp | Glu | Glu | Thr | Gly | Glu | Gly | Pro | Leu | Val | Asn | Thr | Ser | Asp | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Asn | Glu | Glu | Leu | Gly | Gln | Val | Glu | Tyr | Ile | Phe | Thr | Asp | Lys | Thr | Gly |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Thr | Leu | Thr | Glu | Asn | Asn | Met | Glu | Phe | Lys | Glu | Cys | Cys | Ile | Glu | Gly |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| His | Val | Tyr | Val | Pro | His | Val | Ile | Cys | Asn | Gly | Gln | Val | Leu | Pro | Glu |
|     |     |     | 100 |     |     |     |     |     | 105 |     |     |     | 110 |     |     |
| Ser | Ser | Gly | Ile | Asp | Met | Ile | Asp | Ser | Ser | Pro | Ser | Val | Asn | Gly | Arg |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Glu | Arg | Glu | Glu | Leu | Phe | Phe | Arg | Ala | Leu | Cys | Leu | Cys | His | Thr | Val |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gln | Val | Lys | Asp | Asp | Asp | Ser | Val | Asp | Gly | Pro | Arg | Lys | Ser | Pro | Asp |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Gly | Lys | Ser | Cys | Val | Tyr | Ile | Ser | Ser | Pro | Asp | Glu | Val | Ala |     |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     | 175 |     |     |
| Leu | Val | Glu | Gly | Val | Gln | Arg | Leu | Gly | Phe | Thr | Tyr | Leu | Arg | Leu | Lys |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Asp | Asn | Tyr | Met | Glu | Ile | Leu | Asn | Arg | Glu | Asn | His | Ile | Glu | Arg | Phe |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Glu | Leu | Leu | Glu | Ile | Leu | Ser | Phe | Asp | Ser | Val | Arg | Arg | Arg | Met | Ser |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Val | Ile | Val | Lys | Ser | Ala | Thr | Gly | Glu | Ile | Tyr | Leu | Phe | Cys | Lys | Gly |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ala | Asp | Ser | Ser | Ile | Phe | Pro | Arg | Val | Ile | Glu | Gly | Lys | Val | Asp | Gln |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ile | Arg | Ala | Arg | Val | Glu | Arg | Asn | Ala | Val | Glu | Gly | Leu | Arg | Thr | Leu |
|     |     |     | 260 |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Cys | Val | Ala | Tyr | Lys | Arg | Leu | Ile | Gln | Glu | Glu | Tyr | Glu | Gly | Ile | Cys |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 275 |     |     |     |     | 280 |     |     |     | 285 |     |     |     |     |     |
| Lys | Leu | Leu | Gln | Ala | Ala | Lys | Val | Ala | Leu | Gln | Asp | Arg | Glu | Lys | Lys |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Leu | Ala | Glu | Ala | Tyr | Glu | Gln | Ile | Glu | Lys | Asp | Leu | Thr | Leu | Leu | Gly |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Ala | Thr | Ala | Val | Glu | Asp | Arg | Leu | Gln | Glu | Lys | Ala | Ala | Asp | Thr | Ile |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Glu | Ala | Leu | Gln | Lys | Ala | Gly | Ile | Lys | Val | Trp | Val | Leu | Thr | Gly | Asp |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Lys | Met | Glu | Thr | Ala | Ala | Ala | Thr | Cys | Tyr | Ala | Cys | Lys | Leu | Phe | Arg |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Arg | Asn | Thr | Gln | Leu | Leu | Glu | Leu | Thr | Thr | Lys | Arg | Ile | Glu | Glu | Gln |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Ser | Leu | His | Asp | Val | Leu | Phe | Glu | Leu | Ser | Lys | Thr | Val | Leu | Arg | His |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Ser | Gly | Ser | Leu | Thr | Arg | Asp | Asn | Leu | Ser | Gly | Leu | Ser | Ala | Asp | Met |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Gln | Asp | Tyr | Gly | Leu | Ile | Ile | Asp | Gly | Ala | Ala | Leu | Ser | Leu | Ile | Met |
|     |     | 420 |     |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Lys | Pro | Arg | Glu | Asp | Gly | Ser | Ser | Gly | Asn | Tyr | Arg | Glu | Leu | Phe | Leu |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Glu | Ile | Cys | Arg | Ser | Cys | Ser | Ala | Val | Leu | Cys | Cys | Arg | Met | Ala | Pro |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Leu | Gln | Lys | Ala | Gln | Ile | Val | Lys | Leu | Ile | Lys | Phe | Ser | Lys | Glu | His |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Pro | Ile | Thr | Leu | Ala | Ile | Gly | Asp | Gly | Ala | Asn | Asp | Val | Ser | Met | Ile |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Leu | Glu | Ala | His | Val | Gly | Ile | Gly | Val | Ile | Gly | Lys | Glu | Gly | Arg | Gln |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Ala | Ala | Arg | Asn | Ser | Asp | Tyr | Ala | Ile | Pro | Lys | Phe | Lys | His | Leu | Lys |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Lys | Met | Leu | Leu | Val | His | Gly | His | Phe | Tyr | Tyr | Ile | Arg | Ile | Ser | Glu |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Leu | Val | Gln | Tyr | Phe | Phe | Tyr | Lys | Asn | Val | Cys | Phe | Ile | Phe | Pro | Gln |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Phe | Leu | Tyr | Gln | Phe | Phe | Cys | Gly | Phe | Ser | Gln | Gln | Thr | Val | His | Asp |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |
| Thr | Ala | Tyr | Leu | Thr | Leu | Tyr | Asn | Ile | Ser | Phe | Thr | Ser | Leu | Pro | Ile |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Leu | Leu | Tyr | Ser | Leu | Met | Glu | Gln | His | Val | Gly | Ile | Asp | Val | Leu | Lys |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |
| Arg | Asp | Pro | Thr | Leu | Tyr | Arg | Asp | Val | Ala | Lys | Asn | Ala | Leu | Leu | Arg |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |
| Trp | Arg | Val | Phe | Ile | Tyr | Trp | Thr | Leu | Leu | Gly | Leu | Phe | Asp | Ala | Leu |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |
| Val | Phe | Phe | Phe | Gly | Ala | Tyr | Phe | Val | Phe | Glu | Asn | Thr | Thr | Val | Thr |
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |
| Ser | Asn | Gly | Gln | Ile | Phe | Gly | Asn | Trp | Thr | Phe | Gly | Thr | Leu | Val | Phe |
|     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |     |
| Thr | Val | Met | Val | Phe | Thr | Val | Thr | Leu | Lys | Leu | Ala | Leu | Asp | Thr | His |
|     |     | 675 |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |
| Tyr | Trp | Thr | Trp | Ile | Asn | His | Phe | Val | Ile | Trp | Gly | Ser | Leu | Leu | Phe |
|     | 690 |     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     |
| Tyr | Val | Val | Phe | Ser | Leu | Leu | Trp | Gly | Gly | Val | Ile | Trp | Pro | Phe | Leu |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 705 |     | 710 |     | 715 |     | 720 |     |     |     |     |     |     |     |     |     |
| Asn | Tyr | Gln | Arg | Met | Tyr | Tyr | Val | Phe | Ile | Gln | Met | Leu | Ser | Ser | Gly |
|     |     | 725 |     |     |     |     |     | 730 |     |     |     |     | 735 |     |     |
| Pro | Ala | Trp | Leu | Ala | Ile | Val | Leu | Leu | Val | Thr | Ile | Ser | Leu | Leu | Pro |
|     |     | 740 |     |     |     |     |     | 745 |     |     |     |     | 750 |     |     |
| Asp | Val | Leu | Lys | Lys | Val | Leu | Cys | Arg | Gln | Leu | Trp | Pro | Thr | Ala | Thr |
|     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |     |     |     |
| Glu | Arg | Val | Gln | Thr | Lys | Ser | Gln | Cys | Leu | Ser | Val | Glu | Gln | Ser | Thr |
|     |     | 770 |     |     |     | 775 |     |     |     |     | 780 |     |     |     |     |
| Ile | Phe | Met | Leu | Ser | Gln | Thr | Ser | Ser | Ser | Leu | Ser | Phe |     |     |     |
| 785 |     |     |     |     | 790 |     |     |     |     | 795 |     |     |     |     |     |

&lt;210&gt; 4265

&lt;211&gt; 2422

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4265

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&lt;210&gt; 4266

&lt;211&gt; 613

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4266

Xaa Gly Gly Pro Arg Gly Ser Gly Ser Ala Ala Glu Thr Met Pro Glu



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| Ile Arg Val Thr Pro Leu Gly Ala Gly Gln Asp Val Gly Arg Ser Cys |     |     |     |
| 20  | 25  | 30  |     |
| Ile Leu Val Ser Ile Ala Gly Lys Asn Val Met Leu Asp Cys Gly Met |     |     |     |
| 35  | 40  | 45  |     |
| His Met Gly Phe Asn Asp Asp Arg Arg Phe Pro Asp Phe Ser Tyr Ile |     |     |     |
| 50  | 55  | 60  |     |
| Thr Gln Asn Gly Arg Leu Thr Asp Phe Leu Asp Cys Val Ile Ile Ser |     |     |     |
| 65  | 70  | 75  | 80  |
| His Phe His Leu Asp His Cys Gly Ala Leu Pro Tyr Phe Ser Glu Met |     |     |     |
| 85  | 90  | 95  |     |
| Val Gly Tyr Asp Gly Pro Ile Tyr Met Thr His Pro Thr Gln Ala Ile |     |     |     |
| 100   | 105 | 110 |     |
| Cys Pro Ile Leu Leu Glu Asp Tyr Arg Lys Ile Ala Val Asp Lys Lys |     |     |     |
| 115   | 120 | 125 |     |
| Gly Glu Ala Asn Phe Phe Thr Ser Gln Met Ile Lys Asp Cys Met Lys |     |     |     |
| 130   | 135 | 140 |     |
| Lys Val Val Ala Val His Leu His Gln Thr Val Gln Val Asp Asp Glu |     |     |     |
| 145   | 150 | 155 | 160 |
| Leu Glu Ile Lys Ala Tyr Tyr Ala Gly His Val Leu Gly Ala Ala Met |     |     |     |
| 165   | 170 | 175 |     |
| Phe Gln Ile Lys Val Gly Ser Glu Ser Val Val Tyr Thr Gly Asp Tyr |     |     |     |
| 180   | 185 | 190 |     |
| Asn Met Thr Pro Asp Arg His Leu Gly Ala Ala Trp Ile Asp Lys Cys |     |     |     |
| 195   | 200 | 205 |     |
| Arg Pro Asn Leu Leu Ile Thr Glu Ser Thr Tyr Ala Thr Thr Ile Arg |     |     |     |
| 210   | 215 | 220 |     |
| Asp Ser Lys Arg Cys Arg Glu Arg Asp Phe Leu Lys Lys Val His Glu |     |     |     |
| 225   | 230 | 235 | 240 |
| Thr Val Glu Arg Gly Gly Lys Val Leu Ile Pro Val Phe Ala Leu Gly |     |     |     |
| 245   | 250 | 255 |     |
| Arg Ala Gln Glu Leu Cys Ile Leu Leu Glu Thr Phe Trp Glu Arg Met |     |     |     |
| 260   | 265 | 270 |     |
| Asn Leu Lys Val Pro Ile Tyr Phe Ser Thr Gly Leu Thr Glu Lys Ala |     |     |     |
| 275   | 280 | 285 |     |
| Asn His Tyr Tyr Lys Leu Phe Ile Pro Trp Thr Asn Gln Lys Ile Arg |     |     |     |
| 290   | 295 | 300 |     |
| Lys Thr Phe Val Gln Arg Asn Met Phe Glu Phe Lys His Ile Lys Ala |     |     |     |
| 305   | 310 | 315 | 320 |
| Phe Asp Arg Ala Phe Ala Asp Asn Pro Gly Pro Met Val Val Phe Ala |     |     |     |
| 325   | 330 | 335 |     |
| Thr Pro Gly Met Leu His Ala Gly Gln Ser Leu Gln Ile Phe Arg Lys |     |     |     |
| 340   | 345 | 350 |     |
| Trp Ala Gly Asn Glu Lys Asn Met Val Ile Met Pro Gly Tyr Cys Val |     |     |     |
| 355   | 360 | 365 |     |
| Gln Gly Thr Val Gly His Lys Ile Leu Ser Gly Gln Arg Lys Leu Glu |     |     |     |
| 370   | 375 | 380 |     |
| Met Glu Gly Arg Gln Val Leu Glu Val Lys Met Gln Val Glu Tyr Met |     |     |     |
| 385   | 390 | 395 | 400 |
| Ser Phe Ser Ala His Ala Asp Ala Lys Gly Ile Met Gln Leu Val Gly |     |     |     |
| 405   | 410 | 415 |     |
| Gln Ala Glu Pro Glu Ser Val Leu Leu Val His Gly Glu Ala Lys Lys |     |     |     |
| 420   | 425 | 430 |     |
| Met Glu Phe Leu Lys Gln Lys Ile Glu Gln Glu Leu Arg Val Asn Cys |     |     |     |

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 His Leu His Asp Thr Arg Lys Glu Gln Glu Thr Ala Leu Arg Val Tyr  
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2230

&lt;210&gt; 4268

&lt;211&gt; 210

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4268

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Ala Gly Ala Pro Val Gly His Trp Gly Thr Arg Ala Arg Gln Val Lys
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 35           40           45
Lys Arg Cys Glu Ser Cys Ser Gln Lys Leu Glu Arg Glu Asn Asn His
 50           55           60
Cys Asn Ile Ser His Ser Ile Ile Leu Asn Ser Glu Asp Gly Glu Ile
 65           70           75           80
Leu Asn Asn Glu Glu His Glu Tyr Ala Ser Lys Lys Arg Lys Lys Asp
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His Phe Arg Asn Asp Thr Asn Thr Gln Ser Phe Tyr His Glu Lys Trp
100          105          110
Ile Tyr Val His Lys Glu Ser Thr Lys Glu Arg His Gly Tyr Cys Thr
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Leu Gly Glu Thr Phe Asn Arg Leu Asp Phe Ser Ser Ala Ile Gln Asp
130          135          140
Ile Arg Arg Phe Asn Tyr Val Val Lys Leu Leu Gln Leu Ile Ala Lys
145          150          155          160
Ser Gln Leu Thr Ser Leu Ser Gly Val Ala Gln Lys Asn Tyr Phe Asn
165          170          175
Ile Leu Asp Lys Ile Val Gln Lys Val Leu Asp Asp His His Asn Pro
180          185          190
Arg Leu Ile Lys Asp Leu Leu Gln Asp Leu Ser Ser Thr Leu Xaa His
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Ser Tyr
210

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&lt;210&gt; 4269

&lt;211&gt; 5748

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4269

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&lt;211&gt; 1084

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4270

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ser | Phe | Thr | Gly | Gly | Arg | Thr | Asn | Asn | Ala | Glu | Thr | Val | Gly | Lys |
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| Ser | Pro | Ala | Tyr | Arg | Arg | Cys | Ser | Met | Asn | Arg | Ser | Arg | Ala | Ile | Val |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gln | Arg | Gly | Arg | Val | Leu | Pro | Pro | Pro | Ala | Pro | Leu | Asp | Thr | Thr | Asn |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Ala | Gly | Arg | Arg | Thr | Leu | Gln | Gly | Arg | Ala | Lys | Met | Ala | Ser | Val |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Pro | Val | Tyr | Cys | Leu | Cys | Arg | Leu | Pro | Tyr | Asp | Val | Thr | Arg | Phe | Met |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     |     | 80  |
| Ile | Glu | Cys | Asp | Met | Cys | Gln | Asp | Trp | Phe | His | Gly | Ser | Cys | Val | Gly |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Val | Glu | Glu | Glu | Lys | Ala | Ala | Asp | Ile | Asp | Leu | Tyr | His | Cys | Pro | Asn |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Cys | Glu | Val | Leu | His | Gly | Pro | Ser | Ile | Met | Lys | Lys | Arg | Arg | Gly | Ser |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Lys | Gly | His | Asp | Thr | His | Lys | Gly | Lys | Pro | Val | Lys | Thr | Gly | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Pro | Thr | Phe | Val | Arg | Glu | Leu | Arg | Ser | Arg | Thr | Phe | Asp | Ser | Ser | Asp |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Glu | Val | Ile | Leu | Lys | Pro | Thr | Gly | Asn | Gln | Leu | Thr | Val | Glu | Phe | Leu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Glu | Glu | Asn | Ser | Phe | Ser | Val | Pro | Ile | Leu | Val | Leu | Lys | Lys | Asp | Gly |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Leu | Gly | Met | Thr | Leu | Pro | Ser | Pro | Ser | Phe | Thr | Val | Arg | Asp | Val | Glu |
|     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| His | Tyr | Val | Gly | Ser | Asp | Lys | Glu | Ile | Asp | Val | Ile | Asp | Val | Thr | Arg |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gln | Ala | Asp | Cys | Lys | Met | Lys | Leu | Gly | Asp | Phe | Val | Lys | Tyr | Tyr | Tyr |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     |     | 240 |
| Ser | Gly | Lys | Arg | Glu | Lys | Val | Leu | Asn | Val | Ile | Ser | Leu | Glu | Phe | Ser |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |  |
| Asp | Thr | Arg | Leu | Ser | Asn | Leu | Val | Glu | Thr | Pro | Lys | Ile | Val | Arg | Lys |  |  |
|     |     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |  |  |
| Leu | Ser | Trp | Val | Glu | Asn | Leu | Trp | Pro | Glu | Glu | Cys | Val | Phe | Glu | Arg |  |  |
|     |     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |  |  |
| Pro | Asn | Val | Gln | Lys | Tyr | Cys | Leu | Met | Ser | Val | Arg | Asp | Ser | Tyr | Thr |  |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |  |
| Asp | Phe | His | Ile | Asp | Phe | Gly | Gly | Thr | Ser | Val | Trp | Tyr | His | Val | Leu |  |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |  |
| Lys | Gly | Glu | Lys | Ile | Phe | Tyr | Leu | Ile | Arg | Pro | Thr | Asn | Ala | Asn | Leu |  |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |  |
| Thr | Leu | Phe | Glu | Cys | Trp | Ser | Ser | Ser | Ser | Asn | Gln | Asn | Glu | Met | Phe |  |  |
|     |     |     | 340 |     |     |     |     |     | 345 |     |     |     | 350 |     |     |  |  |
| Phe | Gly | Asp | Gln | Val | Asp | Lys | Cys | Tyr | Lys | Cys | Ser | Val | Lys | Gln | Gly |  |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |  |
| Gln | Thr | Leu | Phe | Ile | Pro | Thr | Gly | Trp | Ile | His | Ala | Val | Leu | Thr | Pro |  |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |  |
| Val | Asp | Cys | Leu | Ala | Phe | Gly | Gly | Asn | Phe | Leu | His | Ser | Leu | Asn | Ile |  |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |  |
| Glu | Met | Gln | Leu | Lys | Ala | Tyr | Glu | Ile | Glu | Lys | Arg | Leu | Ser | Thr | Ala |  |  |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |  |  |
| Asp | Leu | Phe | Arg | Phe | Pro | Asn | Phe | Glu | Thr | Ile | Cys | Trp | Tyr | Val | Gly |  |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |  |
| Lys | His | Ile | Leu | Asp | Ile | Phe | Arg | Gly | Leu | Arg | Glu | Asn | Arg | Arg | His |  |  |
|     | 435 |     |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |  |  |
| Pro | Ala | Ser | Tyr | Leu | Val | His | Gly | Gly | Lys | Ala | Leu | Asn | Leu | Ala | Phe |  |  |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |  |  |
| Arg | Ala | Trp | Thr | Arg | Lys | Glu | Ala | Leu | Pro | Asp | His | Glu | Asp | Glu | Ile |  |  |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |  |
| Pro | Glu | Thr | Val | Arg | Thr | Val | Gln | Leu | Ile | Lys | Asp | Leu | Ala | Arg | Glu |  |  |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |  |  |
| Ile | Arg | Leu | Val | Glu | Asp | Ile | Phe | Gln | Gln | Asn | Val | Gly | Lys | Thr | Ser |  |  |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |  |
| Asn | Ile | Phe | Gly | Leu | Gln | Arg | Ile | Phe | Pro | Ala | Gly | Ser | Ile | Pro | Leu |  |  |
|     | 515 |     |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |  |  |
| Thr | Arg | Pro | Ala | His | Ser | Thr | Ser | Val | Ser | Met | Ser | Arg | Leu | Ser | Leu |  |  |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |  |  |
| Pro | Ser | Lys | Asn | Gly | Ser | Lys | Lys | Lys | Gly | Leu | Lys | Pro | Lys | Glu | Leu |  |  |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |  |  |
| Phe | Lys | Lys | Ala | Glu | Arg | Lys | Gly | Lys | Glu | Ser | Ser | Ala | Leu | Gly | Pro |  |  |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |  |  |
| Ala | Gly | Gln | Leu | Ser | Tyr | Asn | Leu | Met | Asp | Thr | Tyr | Ser | His | Gln | Ala |  |  |
|     |     | 580 |     |     |     |     |     | 585 |     |     |     |     | 590 |     |     |  |  |
| Leu | Lys | Thr | Gly | Ser | Phe | Gln | Lys | Ala | Lys | Phe | Asn | Ile | Thr | Gly | Ala |  |  |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |  |  |
| Cys | Leu | Asn | Asp | Ser | Asp | Asp | Asp | Ser | Pro | Asp | Leu | Asp | Leu | Asp | Gly |  |  |
|     | 610 |     |     |     |     | 615 |     |     |     | 620 |     |     |     |     |     |  |  |
| Asn | Glu | Ser | Pro | Leu | Ala | Leu | Leu | Met | Ser | Asn | Gly | Ser | Thr | Lys | Arg |  |  |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |  |  |
| Val | Lys | Ser | Leu | Ser | Lys | Ser | Arg | Arg | Thr | Lys | Ile | Ala | Lys | Lys | Val |  |  |
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |  |  |
| Asp | Lys | Ala | Arg | Leu | Met | Ala | Glu | Gln | Val | Met | Glu | Asp | Glu | Phe | Asp |  |  |
|     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |     |  |  |
| Leu | Asp | Ser | Asp | Asp | Glu | Leu | Gln | Ile | Asp | Glu | Arg | Leu | Gly | Lys | Glu |  |  |

|   |      |      |
|---|------|------|
| 675   | 680  | 685  |
| Lys Ala Thr Leu Ile Ile Arg Pro Lys Phe Pro Arg Lys Leu Pro Arg |      |      |
| 690   | 695  | 700  |
| Ala Lys Pro Cys Ser Asp Pro Asn Arg Val Arg Glu Pro Gly Glu Val |      |      |
| 705   | 710  | 715  |
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|   | 740  | 745  |
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|   | 755  | 760  |
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|   | 770  | 775  |
| Met Leu Cys Met Ala Asn Leu Gln Ser Ser Ser Ser Ser Pro Ala Thr |      |      |
| 785   | 790  | 795  |
| Ser Ser Leu Gln Ala Trp Trp Thr Gly Gly Gln Asp Arg Ser Ser Gly |      |      |
|   | 805  | 810  |
| Ser Ser Ser Ser Gly Leu Gly Thr Val Ser Asn Ser Pro Ala Ser Gln |      |      |
|   | 820  | 825  |
| Arg Thr Pro Gly Lys Arg Pro Ile Lys Arg Pro Ala Tyr Trp Arg Thr |      |      |
|   | 835  | 840  |
| Glu Ser Glu Glu Glu Glu Glu Asn Ala Ser Leu Asp Glu Gln Asp Ser |      |      |
|   | 850  | 855  |
| Leu Gly Ala Cys Phe Lys Asp Ala Glu Tyr Ile Tyr Pro Ser Leu Glu |      |      |
| 865   | 870  | 875  |
| Ser Asp Asp Asp Asp Pro Ala Leu Lys Ser Arg Pro Lys Lys Lys Lys |      |      |
|   | 885  | 890  |
| Asn Ser Asp Asp Ala Pro Trp Ser Pro Lys Ala Arg Val Thr Pro Thr |      |      |
|   | 900  | 905  |
| Leu Pro Lys Gln Asp Arg Pro Val Arg Glu Gly Thr Arg Val Ala Ser |      |      |
|   | 915  | 920  |
| Ile Glu Thr Gly Leu Ala Ala Ala Ala Ala Lys Leu Ala Gln Gln Glu |      |      |
|   | 930  | 935  |
| Leu Gln Lys Ala Gln Lys Lys Lys Tyr Ile Lys Lys Lys Pro Leu Leu |      |      |
| 945   | 950  | 955  |
| Lys Glu Val Glu Gln Pro Arg Pro Gln Asp Ser Asn Leu Ser Leu Thr |      |      |
|   | 965  | 970  |
| Val Pro Ala Pro Thr Val Ala Ala Thr Pro Gln Leu Val Thr Ser Ser |      |      |
|   | 980  | 985  |
| Ser Pro Leu Pro Pro Pro Glu Pro Lys Gln Glu Ala Leu Ser Gly Ser |      |      |
|   | 995  | 1000 |
| Leu Ala Asp His Glu Tyr Thr Ala Arg Pro Asn Ala Phe Gly Met Ala |      |      |
|   | 1010 | 1015 |
| Gln Ala Asn Arg Ser Thr Thr Pro Met Ala Pro Gly Val Phe Leu Thr |      |      |
| 1025  | 1030 | 1035 |
| Gln Arg Arg Pro Ser Val Gly Ser Gln Ser Asn Gln Ala Gly Gln Gly |      |      |
|   | 1045 | 1050 |
| Lys Arg Pro Lys Lys Gly Leu Ala Thr Ala Lys Gln Arg Leu Gly Arg |      |      |
|   | 1060 | 1065 |
| Ile Leu Lys Ile His Arg Asn Gly Lys Leu Leu Leu                 |      |      |
|   | 1075 | 1080 |

&lt;210&gt; 4271

&lt;211&gt; 588

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4271

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480
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540
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588

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&lt;210&gt; 4272

&lt;211&gt; 134

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4272

```

Thr Met Ser Phe Pro Leu Asn Ser Pro Gly Gln Gln Ser Gly Leu Lys
1           5           10           15
Ile Leu Arg Gln Leu Thr Thr Asp Phe Val His His Tyr Ile Val Ala
20           25           30
Asn Asn Phe Ser Glu Leu Phe His Leu Leu Ser Ser Arg Asn Cys Lys
35           40           45
Thr Arg Asn Leu Val Met Lys Leu Leu Leu Asn Met Ser Glu Asn Pro
50           55           60
Thr Ala Ala Arg Asp Met Ile Asn Met Lys Ala Leu Ala Ala Leu Lys
65           70           75           80
Leu Ile Phe Asn His Lys Glu Ala Lys Ala Asn Leu Val Ser Gly Val
85           90           95
Ala Ile Phe Ile Asn Ile Lys Glu His Ile Arg Lys Gly Ser Ile Val
100          105          110
Val Asn Lys Tyr Gly His Thr Thr Asn Lys Ile Gly Phe Cys Leu Phe
115          120          125
Leu Val Lys Asp Glu Phe
130

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&lt;210&gt; 4273

&lt;211&gt; 2081

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4273

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gagtaggtgc atgagtggat aaatgggtgg gtgggtaggt gaatagatgt atagatttat  
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aataggggga aggggtggatt ggtagatggg tagatggagg gatacattgc tgtgtggata  
240  
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420  
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1560

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 1680  
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 1920  
 ttaggacaat gttgtgtaaa tctttgaagg acacaccgaa gacctttata ctgtgatctt  
 1980  
 ttaccccttt cactcttggc tttcttatgt tgctttcatg aatggaatgg aaaaaagatg  
 2040  
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 2081

<210> 4274

<211> 235

<212> PRT

<213> Homo sapiens

<400> 4274

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Leu | Gly | Lys | Leu | Leu | Leu | His | Ser | Gly | Arg | Met | Ser | Ser | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Met | Ser | Ser | Cys | Pro | Cys | Ser | Thr | Trp | Pro | Met | Trp | Asp | Thr | Ser | Asp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Glu | Ser | Ile | Arg | Ala | His | Val | Met | Ala | Ser | His | His | Ser | Lys | Arg |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Arg | Gly | Arg | Ala | Ser | Ser | Glu | Ser | Gln | Gly | Leu | Gly | Ala | Gly | Val | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Thr | Glu | Xaa | Asp | Val | Glu | Glu | Glu | Ala | Leu | Arg | Arg | Lys | Leu | Glu | Glu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Leu | Thr | Ser | Asn | Val | Ser | Asp | Gln | Glu | Thr | Phe | Val | Arg | Gly | Gly | Gly |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ser | Gln | Gly | Arg | Lys | Cys | Arg | Ala | Gln | Gln | Gly | Gln | Ile | Ser | Trp | Ala |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Pro | Pro | Gly | Gly | Pro | Gly | Arg | Trp | His | Gly | Cys | Pro | Ser | Asn | Gln |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Gln | Thr | Gly | Lys | Lys | Pro | Gln | Asp | Pro | Gly | Asp | Pro | Val | Gln | Tyr | Asn |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Arg | Thr | Thr | Asp | Glu | Glu | Leu | Ser | Glu | Leu | Glu | Asp | Arg | Val | Ala | Val |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Thr | Ala | Ser | Glu | Val | Gln | Gln | Ala | Glu | Ser | Glu | Val | Ser | Asp | Ile | Glu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Ser | Arg | Ile | Ala | Ala | Leu | Arg | Ala | Ala | Gly | Leu | Thr | Val | Lys | Pro | Ser |
|     |     |     | 180 |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Gly | Lys | Pro | Arg | Arg | Lys | Ser | Asn | Leu | Pro | Ile | Phe | Leu | Pro | Arg | Val |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Ala | Gly | Lys | Leu | Gly | Lys | Arg | Pro | Glu | Asp | Pro | Asn | Ala | Asp | Pro | Ser |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ser | Glu | Ala | Lys | Ala | Met | Ala | Val | Pro | Ile | Phe |     |     |     |     |     |

225

230

235

&lt;210&gt; 4275

&lt;211&gt; 874

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4275

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 120  
 ctcatgctgga agcctgtgtc catcgtgtcc ccggagccag ggaccaccgc tgacgtgctg  
 180  
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 240  
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 300  
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 360  
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 420  
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 480  
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 540  
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 600  
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 660  
 aagcagtcaa aagacctggc cctggcggca gaggcgctgc ggggtggccc gggtcacctg  
 720  
 acccggtca caggtggagg gggtagcgag gagatcctgg acatcatctt ccaggacttc  
 780  
 tgtgtgggca agtgacggga tccaggggaat tcgcacccaa gctgcgtgga gaccaggag  
 840  
 cctcggggga tctggaaaca gtttaggcca attg  
 874

&lt;210&gt; 4276

&lt;211&gt; 264

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4276

Met Gln Val Ala Leu Gly Ala His Leu Arg Asp Ala Arg Arg Gly Gln  
 1 5 10 15  
 Arg Leu Arg Ser Gly Ala His Val Val Thr Gly Pro Pro Asn Ala  
 20 25 30  
 Gly Lys Ser Ser Leu Val Asn Leu Leu Ser Arg Lys Pro Val Ser Ile  
 35 40 45  
 Val Ser Pro Glu Pro Gly Thr Thr Arg Asp Val Leu Glu Thr Pro Val  
 50 55 60  
 Asp Leu Ala Gly Phe Pro Val Leu Leu Ser Asp Thr Ala Gly Leu Arg

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Glu | Gly | Val | Gly | Pro | Val | Glu | Gln | Glu | Gly | Val | Arg | Arg | Ala | Arg | Glu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Arg | Leu | Glu | Gln | Ala | Asp | Leu | Ile | Leu | Ala | Met | Leu | Asp | Ala | Ser | Asp |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Ala | Ser | Pro | Ser | Ser | Cys | Asn | Phe | Leu | Ala | Thr | Val | Val | Ala | Ser |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Val | Gly | Ala | Gln | Ser | Pro | Ser | Asp | Ser | Ser | Gln | Arg | Leu | Leu | Leu | Val |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Leu | Asn | Lys | Ser | Asp | Leu | Leu | Ser | Pro | Glu | Gly | Pro | Gly | Pro | Gly | Pro |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Asp | Leu | Pro | Pro | His | Leu | Leu | Leu | Ser | Cys | Leu | Thr | Gly | Glu | Gly | Leu |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asp | Gly | Leu | Leu | Glu | Ala | Leu | Arg | Lys | Glu | Leu | Ala | Ala | Val | Cys | Gly |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Asp | Pro | Ser | Thr | Asp | Pro | Pro | Leu | Leu | Thr | Arg | Ala | Arg | His | Gln | His |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| His | Leu | Gln | Gly | Cys | Leu | Asp | Ala | Leu | Gly | His | Tyr | Lys | Gln | Ser | Lys |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asp | Leu | Ala | Leu | Ala | Ala | Glu | Ala | Leu | Arg | Val | Ala | Arg | Gly | His | Leu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Thr | Arg | Leu | Thr | Gly | Gly | Gly | Gly | Thr | Glu | Glu | Ile | Leu | Asp | Ile | Ile |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Phe | Gln | Asp | Phe | Cys | Val | Gly | Lys |     |     |     |     |     |     |     |     |
|     |     |     | 260 |     |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4277

&lt;211&gt; 1070

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4277

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 aggaccaggc ccgcgggctc agctctcgcc gccagcgggc cgcagcattt ttgaaacgtt  
 180  
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 240  
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 300  
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 360  
 gaccgggacc gagagagaga gaaaagagac aaagcaagag agagtgagaa ttcaaggcca  
 420  
 cgccggagct gtaccttgga aggaggagcc aaaaattatg ctgagagtga tcacagtga  
 480  
 gacgaggaca atgacaacaa tagtgccacc gcagaggagt ccacgaagaa gaataagaag  
 540  
 aaaccaccga aaaaaaagtc tcgttatgaa aggacagata ccggtgagat aacatcctac  
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<210> 4278
<211> 253
<212> PRT
<213> Homo sapiens
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3482



<210> 4279  
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<212> DNA  
<213> Homo sapiens

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 1740  
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 1860  
 ctcattgggtg ggagcccagc catggcccta attgtgcctg agcttgactt tcagtcaggg  
 1920  
 ccacagtgag cattaaatta ttattccata caaaaaaaaaaaa aaa  
 1963

<210> 4280  
 <211> 575  
 <212> PRT  
 <213> Homo sapiens

<400> 4280  
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 Val Ser Asp Asp Val Asn Glu Tyr Ala Met Ala Leu Arg Asp Thr Glu  
 35 40 45  
 Asp Lys Leu Arg Arg Cys Pro Lys Arg Arg Lys Asp Ile Leu Ala Glu  
 50 55 60  
 Leu Thr Lys Ser Gln Lys Val Phe Ser Glu Lys Leu Asp His Leu Ser  
 65 70 75 80  
 Arg Arg Leu Ala Trp Val His Ala Thr Val Tyr Ser Gln Glu Lys Met  
 85 90 95  
 Leu Asp Ile Tyr Trp Leu Leu Arg Val Cys Leu Arg Thr Ile Glu His  
 100 105 110  
 Gly Asp Arg Thr Gly Ser Leu Phe Ala Phe Met Pro Glu Phe Tyr Leu  
 115 120 125  
 Ser Val Ala Ile Asn Ser Tyr Ser Ala Leu Lys Asn Tyr Phe Gly Pro  
 130 135 140  
 Val His Ser Met Glu Glu Leu Pro Gly Tyr Glu Glu Thr Leu Thr Arg  
 145 150 155 160  
 Leu Ala Ala Ile Leu Ala Lys His Phe Ala Asp Ala Arg Ile Val Gly  
 165 170 175  
 Thr Asp Ile Arg Asp Ser Leu Met Gln Ala Leu Ala Ser Tyr Val Cys  
 180 185 190  
 Tyr Pro His Ser Leu Arg Ala Val Glu Arg Ile Pro Glu Glu Gln Arg  
 195 200 205  
 Ile Ala Met Val Arg Asn Leu Leu Ala Pro Tyr Glu Gln Arg Pro Trp  
 210 215 220  
 Ala Gln Thr Asn Trp Ile Leu Val Arg Leu Trp Arg Gly Cys Gly Phe  
 225 230 235 240  
 Gly Tyr Arg Tyr Thr Arg Leu Pro His Leu Leu Lys Thr Lys Leu Glu

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<210> 4281
<211> 507
<212> DNA
<213> Homo sapiens
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<400> 4281
acgcgtgaag ggacagagct ggggccttgt caggagcccc acagttggcc aatggggccag
60
atgccccata gtctcagccc acctctcttc tgccatgagt ccctgattc tgtcctttga
120
gctgactctg agaggcagtg ggcttcccgc cagcacctcc ccctatcaca tttgtagggc
180
```

tggtttatga ggccggaagt aagcaagcac cccctcatat caacctggca cttcacaccc  
 240  
 cccatgggta tcagtggggg tgctggctgg ctggcaggca gccagagaca tttcagcagg  
 300  
 tcaggcatgg atgcagggtg aaatgagaga ggatcagtga gcgcattcat gtcttttgag  
 360  
 tggctctacag atgagtgggc tccagtctca aatgaggaga acaaataggg aagtaggagc  
 420  
 tcagggttct tgtgtgtctc ataggcagct gcctatccct gggtgataca gctccctggc  
 480  
 acacccattc ccaagggcac aggatcc  
 507

<210> 4282  
 <211> 106  
 <212> PRT  
 <213> Homo sapiens

<400> 4282  
 Met Asn Ala Leu Thr Asp Pro Leu Ser Phe Pro Pro Ala Ser Met Pro  
 1 5 10 15  
 Asp Leu Leu Lys Cys Leu Trp Leu Pro Ala Ser Gln Pro Ala Pro Pro  
 20 25 30  
 Leu Ile Thr Met Gly Gly Val Lys Cys Gln Val Asp Met Arg Gly Cys  
 35 40 45  
 Leu Leu Thr Ser Gly Leu Ile Asn Gln Pro Tyr Lys Cys Asp Arg Gly  
 50 55 60  
 Arg Cys Trp Arg Glu Ala His Cys Leu Ser Glu Ser Ala Gln Arg Thr  
 65 70 75 80  
 Glu Ser Gly Asp Ser Trp Gln Lys Arg Gly Gly Leu Arg Leu Trp Gly  
 85 90 95  
 Ile Trp Pro Ile Gly Gln Leu Trp Gly Ser  
 100 105

<210> 4283  
 <211> 315  
 <212> DNA  
 <213> Homo sapiens

<400> 4283  
 gaattctcaa ccagaacagc ccagcaggaa aggagccggc atgggggtgcc cctctgcagc  
 60  
 cgaccgtttt cctagaaggc ctaaccgctc aaacgggcag gggagggggg cgggcggccc  
 120  
 gggagaaacc gagtccccgc cgggtcccca ccgtgtggcg ccgaccgaaa taactccagt  
 180  
 ccagctgcaa aaaccctccc gaaaacccaa gcttgctcgg cacaacttcg gtctctccag  
 240  
 cctcattcct gcccgactc cgccaaactg ctgcacctgc ccagcgcagc ggatgcagcg  
 300  
 ctcccggccc nacgg  
 315

<210> 4284

<211> 91  
 <212> PRT  
 <213> Homo sapiens

<400> 4284  
 Met Gly Cys Pro Ser Ala Ala Asp Arg Phe Pro Arg Arg Pro Asn Arg  
 1 5 10 15  
 Ser Asn Gly Gln Gly Arg Gly Ala Gly Gly Pro Gly Glu Thr Glu Ser  
 20 25 30  
 Pro Pro Gly Pro His Arg Val Ala Pro Thr Glu Ile Thr Pro Val Gln  
 35 40 45  
 Leu Gln Lys Pro Ser Arg Lys Pro Lys Leu Val Arg His Asn Phe Gly  
 50 55 60  
 Leu Ser Ser Leu Ile Pro Ala Arg Thr Pro Pro Asn Cys Ser Pro Cys  
 65 70 75 80  
 Pro Ala Gln Arg Met Gln Arg Ser Arg Pro Xaa  
 85 90

<210> 4285  
 <211> 591  
 <212> DNA  
 <213> Homo sapiens

<400> 4285  
 nagatctcag agaacttggt gaacattcag aaaatgcaga aaacgcagggt gaaatgccgc  
 60  
 aaaatcctga ccaagatgaa gcagcagggt catgagacag ccgcctgtcc ggagactgaa  
 120  
 gagataccgc agggagccag tggctgctgg aaggatgacc tccagaagga actgagtgat  
 180  
 atatggtgat gccagcctg cagtctgacc cctgaccctc ctctgaaccc gttcccccaa  
 240  
 cgggatctgg cagtgaccac cagaacctgg agccacactg agtccagact tccctcacc  
 300  
 cctaggactc accccaccac ggcccccaac cttagctgta ctgctgtcta caccctgagc  
 360  
 agtgtggagt ctcccagcgc cccagctcc ttgtcttctt gcaggctctgc tgtgcacgtg  
 420  
 ctgcaggact ccatagacag cctcactttg tgctcggggg cctgtcccaa ggcctcgagc  
 480  
 ctaagaggcc acaagggcac cagtgcctga gccctccact cccctcctgg gactctgact  
 540  
 ccgactgtga ccaggacctc tcccagccac ctttcagcaa gagcggccgc a  
 591

<210> 4286  
 <211> 106  
 <212> PRT  
 <213> Homo sapiens

<400> 4286  
 Cys Pro Ala Cys Ser Leu Thr Pro Asp Pro Pro Leu Asn Pro Phe Pro  
 1 5 10 15  
 Gln Arg Asp Leu Ala Val Thr Thr Arg Thr Trp Ser Pro Pro Glu Ser

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |     |     |
| Arg | Leu | Pro | Ser | Pro | Pro | Arg | Thr | His | Pro | Thr | Thr | Ala | Pro | Asn | Leu |
|     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Ser | Cys | Thr | Ala | Val | Tyr | Thr | Leu | Ser | Ser | Val | Glu | Ser | Pro | Ser | Ala |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Ser | Ser | Leu | Ser | Ser | Cys | Arg | Ser | Ala | Val | His | Val | Leu | Gln | Asp |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ser | Ile | Asp | Ser | Leu | Thr | Leu | Cys | Ser | Gly | Ala | Cys | Pro | Lys | Ala | Ser |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Ser | Leu | Arg | Gly | His | Lys | Gly | Thr | Ser | Ala |     |     |     |     |     |     |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     |     |     |

<210> 4287  
 <211> 868  
 <212> DNA  
 <213> Homo sapiens

<400> 4287  
 cgaggcgcg actgcggggt tcctggtgct gaggacggac gccattggag ttcccagagaa  
 60  
 ggctgagctc tcattctccct gggacccgca gcatggctga gggaagcttc agcgtgcaat  
 120  
 cggaaagcta cagtgttgaa gacatggatg agggtagcga cgaagtcggg gaggaagaga  
 180  
 tggttgaagg caacgactat gaagaattcg gtgcgtttgg tggctatggc accctcacca  
 240  
 gctttgacat ccatatcctc agagccttcg gaagcttggg tccaggcctt cgcattctat  
 300  
 cgaatgagcc ctgggaactg gaaaaccnct gtgctggccc agaccctggt ggaggcattg  
 360  
 cagctggatc cggaaacact tgccaatgag acggccgccc gtgctgccaa cgtagcccgc  
 420  
 gccgcgcct ccaaccgtgc ggctcgggccc gctgccgccc ctgcccgtac cgccttcagt  
 480  
 cagggtggtcg ctagccaccg ggtggccacg ccgcaggtct caggagagga taccagcccc  
 540  
 acgacctacg ccgccgaggc tcagggggccc acccctgagc cacccttgcc ttctccgcag  
 600  
 acctcccaga tgtagtcac cagtaagatg gctgcccccg aggctccggc aacctccgca  
 660  
 cagtcccaga caggctcccc ggcccaggag gctgctactg agggccctag tagcgccgtg  
 720  
 gcattctctc aggtccgtg tgccaggag gtggacgcca accggcccag cacagccttc  
 780  
 ctggggccaga atgatgtctt cgatttcact cagccggcag tgtcagtggc atggcttccc  
 840  
 gcgcccaga gacctgccc gccaagag  
 868

<210> 4288  
 <211> 240  
 <212> PRT  
 <213> Homo sapiens

&lt;400&gt; 4288

```

Met Arg Val Ala Thr Lys Ser Gly Arg Lys Arg Trp Leu Lys Ala Thr
 1           5           10           15
Thr Met Lys Asn Ser Val Arg Leu Val Ala Met Ala Pro Ser Pro Ala
 20           25           30
Leu Thr Ser Ile Ser Ser Glu Pro Ser Glu Ala Trp Val Gln Ala Phe
 35           40           45
Ala Ser Tyr Arg Met Ser Pro Gly Asn Trp Lys Thr Xaa Val Leu Ala
 50           55           60
Gln Thr Leu Val Glu Ala Leu Gln Leu Asp Pro Glu Thr Leu Ala Asn
 65           70           75           80
Glu Thr Ala Ala Arg Ala Ala Asn Val Ala Arg Ala Ala Ala Ser Asn
 85           90           95
Arg Ala Ala Arg Ala Ala Ala Ala Ala Arg Thr Ala Phe Ser Gln
 100          105          110
Val Val Ala Ser His Arg Val Ala Thr Pro Gln Val Ser Gly Glu Asp
 115          120          125
Thr Gln Pro Thr Thr Tyr Ala Ala Glu Ala Gln Gly Pro Thr Pro Glu
 130          135          140
Pro Pro Leu Ala Ser Pro Gln Thr Ser Gln Met Leu Val Thr Ser Lys
 145          150          155          160
Met Ala Ala Pro Glu Ala Pro Ala Thr Ser Ala Gln Ser Gln Thr Gly
 165          170          175
Ser Pro Ala Gln Glu Ala Ala Thr Glu Gly Pro Ser Ser Ala Cys Ala
 180          185          190
Phe Ser Gln Ala Pro Cys Ala Arg Glu Val Asp Ala Asn Arg Pro Ser
 195          200          205
Thr Ala Phe Leu Gly Gln Asn Asp Val Phe Asp Phe Thr Gln Pro Ala
 210          215          220
Val Ser Val Ala Trp Leu Pro Ala Pro Lys Arg Pro Ala Gln Pro Arg
 225          230          235          240

```

&lt;210&gt; 4289

&lt;211&gt; 353

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4289

```

ggatccctgg gaagatgact accctgcttg tgcgggatata gagggagaaa tatgggagcc
 60
tcctcacttc aggtgtcact gctcagcata tatccaggct ttgttttcat attggtcttg
 120
caaagagcct tttgggaaca gttttcttat tgaaacatac tcagtgttta aacctgcagg
 180
tgtgggttgg tggcagtcca catggcatcc tttgctctgt ccctgttctc ctgtctctgg
 240
ctattcaggt tcccgtgagg atactgtcac ccttgaataa tggagcttgc ggaagaccaa
 300
gccctgtttt ttggagtcct tgtgctgagg ccgctgtaac ttgcggagag ttg
 353

```

&lt;210&gt; 4290

&lt;211&gt; 113

&lt;212&gt; PRT

<213> Homo sapiens

<400> 4290

```

Met Thr Thr Leu Pro Val Arg Asp Met Arg Glu Lys Tyr Gly Ser Leu
 1           5           10           15
Leu Thr Ser Gly Val Thr Ala Gln His Ile Ser Arg Leu Cys Phe His
 20           25           30
Ile Gly Leu Ala Lys Ser Leu Leu Gly Thr Val Phe Leu Leu Lys His
 35           40           45
Thr Gln Cys Leu Asn Leu Gln Val Trp Val Gly Gly Ser Pro His Gly
 50           55           60
Ile Leu Cys Ser Val Pro Val Leu Leu Ser Leu Ala Ile Gln Val Pro
 65           70           75           80
Val Arg Ile Leu Ser Pro Leu Asn Asn Gly Ala Cys Gly Arg Pro Ser
 85           90           95
Pro Cys Phe Trp Ser Pro Cys Ala Glu Ala Ala Val Thr Cys Gly Glu
 100          105          110
Leu

```

<210> 4291

<211> 517

<212> DNA

<213> Homo sapiens

<400> 4291

```

nnaaatttgc caagccaaga gttaccccag gaagattctc tcttacatgg ccaattttca
60
caagcagtca ctcccctagc ccatcatcac acagattatt caaagcccac cgatatctca
120
tggagagaca cactttctca gaagtttggg tcttcagatc acttggagaa actatttaag
180
atggatgaag caagtgccca gctccttgct tataaggaaa aaggccattc tcagagttca
240
caattttcct ctgatcaaga aatagctcat ctgctgcctg aaaatgtgag tgcgctccca
300
gctacgggtg cagttgcttc tccacatacc acctcggcta ctccaaagcc cgccaccctt
360
ctaccacca atgcttcagt gacaccttct gggacttccc agccacagct ggccaccaca
420
gctccacctg taaccactgt cacttctcag cctcccacga ccctcatttc tacagttttt
480
acacgggctg tggctacact ccaagcaatg gctacaa
517

```

<210> 4292

<211> 172

<212> PRT

<213> Homo sapiens

<400> 4292

```

Xaa Asn Leu Pro Ser Gln Glu Leu Pro Gln Glu Asp Ser Leu Leu His
 1           5           10           15
Gly Gln Phe Ser Gln Ala Val Thr Pro Leu Ala His His His Thr Asp

```



<400> 4294  
Ala Gly Ala Pro Gly Ala Asp Ala Cys Ser Val Pro Val Ser Glu Ile

```

1           5           10           15
Ile Ala Val Glu Thr Asp Val His Gly Lys His Gln Gly Ser Gly
20           25           30
Lys Trp Gln Lys Met Glu Lys Pro Tyr Ala Phe Thr Val His Cys Val
35           40           45
Lys Arg Ala Arg Arg His Arg Trp Lys Trp Ala Gln Val Thr Phe Trp
50           55           60
Cys Pro Glu Glu Gln Leu Cys His Leu Trp Leu Gln Thr Leu Arg Glu
65           70           75           80
Met Leu Glu Lys Leu Thr Ser Arg Pro Lys His Leu Leu Val Phe Ile
85           90           95
Asn Pro Phe Gly Gly Lys Gly Gln Gly Lys Arg Ile Tyr Glu Arg Lys
100          105          110
Val Ala Pro Leu Phe Thr Leu Ala Ser Ile Thr Thr Asp Ile Ile Val
115          120          125
Thr Glu His Ala Asn Gln Ala Lys Glu Thr Leu Tyr Glu Ile Asn Ile
130          135          140
Asp Lys Tyr Asp Gly Ile Val Cys Val Gly Gly Asp Gly Met Phe Ser
145          150          155          160
Glu Val Leu His Gly Leu Ile Gly Arg Thr Gln Arg Ser Ala Gly Val
165          170          175
Asp Gln Asn His Pro Arg
180

```

<210> 4295  
 <211> 431  
 <212> DNA  
 <213> Homo sapiens

```

<400> 4295
nntctagaaa atcactgtct ccttctaccc tgccatctct acaccaggggt tacaacaag
60
agcccaactgc tggctccttg ttttgtaa at aagatttggt ggactacagc tatgcccgtg
120
catgtacatt ttgtgtatgg ctgcttttgt gccacaacag cagggttgag tattgcgaca
180
gagaccccca ttgccacaaa gcctaaaaca tttgccatcg agccctttaa gaaagagttt
240
gctggccgtg cgcggtggcc gtggctcccg cctgtaatcc cagcactttg gaaggctgag
300
gcaggcgggtg aggtctggag ttcgaaacca gcctggccag cgtggcgaaa cctgtctcc
360
ccctcccaga ttcacgtgat tatccacct cagcctcctg agtacctggg actataggcg
420
cgtgccaacc a
431

```

<210> 4296  
 <211> 138  
 <212> PRT  
 <213> Homo sapiens

```

<400> 4296
Xaa Leu Glu Asn His Cys Leu Leu Leu Pro Cys His Leu Tyr Thr Arg

```

```

1           5           10           15
Val Thr Asn Lys Ser Pro Leu Leu Ala Pro Cys Phe Val Asn Lys Ile
                20                25                30
Cys Trp Thr Thr Ala Met Pro Val His Val His Phe Val Tyr Gly Cys
                35                40                45
Phe Cys Ala Thr Thr Ala Gly Leu Ser Ile Ala Thr Glu Thr Pro Ile
                50                55                60
Ala His Lys Pro Lys Thr Phe Ala Ile Glu Pro Phe Lys Lys Glu Phe
65                70                75                80
Ala Gly Arg Ala Arg Trp Pro Trp Leu Pro Pro Val Ile Pro Ala Leu
                85                90                95
Trp Lys Ala Glu Ala Gly Gly Glu Val Trp Ser Ser Lys Pro Ala Trp
                100                105                110
Pro Ala Trp Arg Asn Pro Val Ser Pro Ser Gln Ile His Val Ile Ile
                115                120                125
Pro Pro Gln Pro Pro Glu Tyr Leu Gly Leu
                130                135

```

&lt;210&gt; 4297

&lt;211&gt; 1668

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4297

```

nccatggact cggcctttgt gggataaaag gtcaaccaag tgtcagctgc agttggaaaa
60
gatttcaccg tgattccatc taaactgatt cagtttgacc caggaatgtc aactaagatg
120
tggaatatag caattaccta tgacggatta gaggaagatg atgaggtctt tgaagtaatt
180
ctgaactccc ctgtgaatgc agttcttggc acaaagacaa aagctgcagt gaaaattttg
240
gactcaaaaag gaggacaatg ccattccttca tattcctcca accaaagcaa gcacagcaca
300
tgggagaagg gcatttggca tctgctgccc ccagggtctt cctcatccac cacttctggt
360
tcctttcatc tggaaagaag acctcttcca tcttccatgc agctagcagt catcagggga
420
gacaccctgc ggggctttga ttctacagat ctttctcaaa ggaagcttag gaccctggg
480
aatggcaaaa cagttcgtcc atcctctggt tatagaaatg gaacagacat catctataat
540
tatcatggga tagtttcctt gaaactggag gatgacagtt tcccaactca caaaaggaag
600
gccaaagtat ccatcattag tcagccacaa aagacaatca aagtggcaga actgcctcaa
660
gcagataagg tggaatccac aactgactca cacttcccca gacaggacca gttgccctca
720
tttccaaaga actgcactct ggaattaaag ggactcttcc attttgaaga aggcattccag
780
aagctgtatc agtgcaatgg gatcgcttgg aaagcctgga gtccccaac caaggatgtg
840
gaagacaaat cctgtccagc cgggtggcac cagcactcag gctactgtca catcttgatc
900

```

acagagcaga aaggcacctg gaatgcggct gcccaagctt gcaggggaaca atacctgggc  
 960  
 aaccttgtaa ctgtattctc caggcagcac atgcggtggc tctgggacat tgggtgggaga  
 1020  
 aagtcctttt ggatagggtt gaacgaccaa gtgcatgctg gccactggga gtggatcggc  
 1080  
 ggtgaacctg ttgccttcac caatgggaga agagggccct ctccacgctc caagcttgga  
 1140  
 aagagctgtg ttttggttca aagacaaggg aaatggcaaa caaaagactg taggagagcc  
 1200  
 aaacctcata attatgtgtg ttccagaaaa ctctaaatat aacagaccct acagggggcc  
 1260  
 acctggagtt tgtcacctat ttattcacag gatctgtgaa tattgtctca tagaaaacaa  
 1320  
 attgttatga ttgagtgggt atacctttgt gattctgtct agtgaaaatg ggacattttt  
 1380  
 aatagtcca gaaagattga taaataaata ttttttacia gataagatac aatttttga  
 1440  
 tctcaatacc ttttaaaata aatgccagca gtattaaaaa gtgtaagggt tgtttattcc  
 1500  
 agaagaccct cacccttacc ccattccaaa tctcaggag caccagtctc atagtccttg  
 1560  
 gatttttttt aaaaaaaatt tttgggtccg ttacctctaa tgaatttatt ctgaaatatg  
 1620  
 tatcgtaggt gctcctacca ctttagtctg agtggaaagc caaaaaac  
 1668

&lt;210&gt; 4298

&lt;211&gt; 411

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4298

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Met | Asp | Ser | Ala | Phe | Val | Gly | Ile | Lys | Val | Asn | Gln | Val | Ser | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Val | Gly | Lys | Asp | Phe | Thr | Val | Ile | Pro | Ser | Lys | Leu | Ile | Gln | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asp | Pro | Gly | Met | Ser | Thr | Lys | Met | Trp | Asn | Ile | Ala | Ile | Thr | Tyr | Asp |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Gly | Leu | Glu | Glu | Asp | Asp | Glu | Val | Phe | Glu | Val | Ile | Leu | Asn | Ser | Pro |
|     | 50  |     |     | 55  |     |     |     | 60  |     |     |     |     |     |     |     |
| Val | Asn | Ala | Val | Leu | Gly | Thr | Lys | Thr | Lys | Ala | Ala | Val | Lys | Ile | Leu |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |
| Asp | Ser | Lys | Gly | Gly | Gln | Cys | His | Pro | Ser | Tyr | Ser | Ser | Asn | Gln | Ser |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Lys | His | Ser | Thr | Trp | Glu | Lys | Gly | Ile | Trp | His | Leu | Leu | Pro | Pro | Gly |
|     |     | 100 |     |     |     | 105 |     |     |     |     |     |     | 110 |     |     |
| Ser | Ser | Ser | Ser | Thr | Thr | Ser | Gly | Ser | Phe | His | Leu | Glu | Arg | Arg | Pro |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Leu | Pro | Ser | Ser | Met | Gln | Leu | Ala | Val | Ile | Arg | Gly | Asp | Thr | Leu | Arg |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gly | Phe | Asp | Ser | Thr | Asp | Leu | Ser | Gln | Arg | Lys | Leu | Arg | Thr | Arg | Gly |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Asn | Gly | Lys | Thr | Val | Arg | Pro | Ser | Ser | Val | Tyr | Arg | Asn | Gly | Thr | Asp |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Ile | Tyr | Asn | 165 | Tyr | His | Gly | Ile | Val | Ser | Leu | Lys | Leu | 170 | Glu | Asp | Asp | 175 |
|     |     |     | 180 |     |     |     |     |     | 185 |     |     |     |     |     |     |     |     | 190 |
| Ser | Phe | Pro | Thr | His | Lys | Arg | Lys | Ala | Lys | Val | Ser | Ile | Ile |     | Ser | Gln |     |     |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |     |     |
| Pro | Gln | Lys | Thr | Ile | Lys | Val | Ala | Glu | Leu | Pro | Gln | Ala | Asp | Lys | Val |     |     |     |
|     | 210 |     |     |     |     | 215 |     |     |     |     |     |     | 220 |     |     |     |     |     |
| Glu | Ser | Thr | Thr | Asp | Ser | His | Phe | Pro | Arg | Gln | Asp | Gln | Leu | Pro | Ser |     |     |     |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     |     | 240 |     |     |     |
| Phe | Pro | Lys | Asn | Cys | Thr | Leu | Glu | Leu | Lys | Gly | Leu | Phe | His | Phe | Glu |     |     |     |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     |     | 255 |     |     |     |
| Glu | Gly | Ile | Gln | Lys | Leu | Tyr | Gln | Cys | Asn | Gly | Ile | Ala | Trp | Lys | Ala |     |     |     |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |     |     |
| Trp | Ser | Pro | Gln | Thr | Lys | Asp | Val | Glu | Asp | Lys | Ser | Cys | Pro | Ala | Gly |     |     |     |
|     |     | 275 |     |     |     | 280 |     |     |     |     |     |     | 285 |     |     |     |     |     |
| Trp | His | Gln | His | Ser | Gly | Tyr | Cys | His | Ile | Leu | Ile | Thr | Glu | Gln | Lys |     |     |     |
|     | 290 |     |     |     | 295 |     |     |     |     |     |     | 300 |     |     |     |     |     |     |
| Gly | Thr | Trp | Asn | Ala | Ala | Gln | Ala | Cys | Arg | Glu | Gln | Tyr | Leu | Gly |     |     |     |     |
| 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |     |     |     |     |
| Asn | Leu | Val | Thr | Val | Phe | Ser | Arg | Gln | His | Met | Arg | Trp | Leu | Trp | Asp |     |     |     |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |     |     |     |
| Ile | Gly | Gly | Arg | Lys | Ser | Phe | Trp | Ile | Gly | Leu | Asn | Asp | Gln | Val | His |     |     |     |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |     |     |     |
| Ala | Gly | His | Trp | Glu | Trp | Ile | Gly | Gly | Glu | Pro | Val | Ala | Phe | Thr | Asn |     |     |     |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |     |     |     |
| Gly | Arg | Arg | Gly | Pro | Ser | Pro | Arg | Ser | Lys | Leu | Gly | Lys | Ser | Cys | Val |     |     |     |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |     |     |     |
| Leu | Val | Gln | Arg | Gln | Gly | Lys | Trp | Gln | Thr | Lys | Asp | Cys | Arg | Arg | Ala |     |     |     |
| 385 |     |     |     | 390 |     |     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |
| Lys | Pro | His | Asn | Tyr | Val | Cys | Ser | Arg | Lys | Leu |     |     |     |     |     |     |     |     |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4299

&lt;211&gt; 988

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4299

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60  
tcccaggagg ggagtgagg gctcaggcac tggcgccctt gtggcctctt aggctcgagg  
120  
ccttgggaca ggccccgag cacaaagtga ggctgtctat ggagttctgc agcacgtgca  
180  
cagcagacca tatatcactc agttccttct ggaggctcct cttccagcag ccaactggctc  
240  
cctgcgggat ctcttcagtc tccggacagg cggtgtctc atgacctgc tgcttcactc  
300  
tggtcaggat ttgcggcat ttcacctgcg tttctgcat tttctgaatg ttcaccaagt  
360  
tctctgagat ctcatcctcc tgcgcttgga gcttctgata gatgaaggtc acctcctccc  
420  
gcaccagttc cagctcctcc cacaggaact tcttgctgtc ccgcatctcc tgggccagca  
480

gctgcaggca gcgagtgggtg cgggcccgt gcatctcttc actgtcacgc agggctcttct  
540  
ccagcccctg aaggccttgg gtcagggccc catcacagctc ctgccggccc tgctccatgc  
600  
cccacttggtg ctctctcttc tctccatggc ggctgtggg gctcagcacc tcttcaagct  
660  
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720  
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840  
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900  
cagtcctcag ctgtgacgct gaagtttgat cccgcgggga caccatcgta ttaaaacgct  
960  
cagagactga gtcacagaga ggggtgtc  
988

&lt;210&gt; 4300

&lt;211&gt; 84

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4300

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Cys | Leu | Trp | Ser | Ser | Ala | Ala | Arg | Ala | Gln | Gln | Thr | Ile | Tyr | His |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Val | Pro | Ser | Gly | Gly | His | Pro | Ser | Ser | Ser | His | Trp | Leu | Pro | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Val | Ser | Leu | Gln | Ser | Pro | Asp | Arg | Arg | Leu | Ser | His | Asp | Pro | Ala | Ala |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ser | Ser | Trp | Ser | Gly | Phe | Cys | Gly | Ile | Ser | Pro | Ala | Phe | Ser | Ala | Phe |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Glu | Cys | Ser | Pro | Ser | Ser | Leu | Arg | Ser | His | Pro | Pro | Ala | Leu | Gly |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ala | Ser | Asp | Arg |     |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4301

&lt;211&gt; 2429

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4301

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120  
cagggccaga gcggggcagg aggatgcttt cccagcccca ccatggagct gcgctgtggg  
180  
ggattgctgt tcagttctcg ctttgattca gggaatctag cccacgtgga gaagggtgaa  
240  
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300

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360  
tttgagaatg ggaacaggtc atggttctac ttcagcgtcc ggggaggaat gccaggaaaa  
420  
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540  
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660  
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720  
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780  
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900  
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960  
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1200  
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1260  
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1320  
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1380  
caacagtctg cggggcttga agagtcagcc cctgatacca tccccccaa agagagtggc  
1440  
gttgcttact atgtggacct gcattggacat gcttccaaa ggggctgctt catgtacgga  
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1560  
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1860  
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1920

actaatctac gggcctggat gctgaaacat gtacgcaaca gccgaggcct aagcagcact  
 1980  
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 2040  
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 2100  
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 2160  
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 2280  
 gtgttcggtt gtctggggca ttgctggggg aagtaagagc ttgaagatat actgttggcc  
 2340  
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 2400  
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa  
 2429

<210> 4302

<211> 717

<212> PRT

<213> Homo sapiens

<400> 4302

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Leu | Arg | Cys | Gly | Gly | Leu | Leu | Phe | Ser | Ser | Arg | Phe | Asp | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Asn | Leu | Ala | His | Val | Glu | Lys | Val | Glu | Ser | Leu | Ser | Ser | Asp | Gly |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Gly | Val | Gly | Gly | Gly | Ala | Ser | Ala | Leu | Thr | Ser | Gly | Ile | Ala | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ser | Pro | Asp | Tyr | Glu | Phe | Asn | Val | Trp | Thr | Arg | Pro | Asp | Cys | Ala | Glu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Thr | Glu | Phe | Glu | Asn | Gly | Asn | Arg | Ser | Trp | Phe | Tyr | Phe | Ser | Val | Arg |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gly | Gly | Met | Pro | Gly | Lys | Leu | Ile | Lys | Ile | Asn | Ile | Met | Asn | Met | Asn |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Lys | Gln | Ser | Lys | Leu | Tyr | Ser | Gln | Gly | Met | Ala | Pro | Phe | Val | Arg | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Pro | Thr | Arg | Pro | Arg | Trp | Glu | Arg | Ile | Arg | Asp | Arg | Pro | Thr | Phe |
|     |     | 115 |     |     |     |     | 120 |     |     |     | 125 |     |     |     |     |
| Glu | Met | Thr | Glu | Thr | Gln | Phe | Val | Leu | Ser | Phe | Val | His | Arg | Phe | Val |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Glu | Gly | Arg | Gly | Ala | Thr | Thr | Phe | Phe | Ala | Phe | Cys | Tyr | Pro | Phe | Ser |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |
| Tyr | Ser | Asp | Cys | Gln | Glu | Leu | Leu | Asn | Gln | Leu | Asp | Gln | Arg | Phe | Pro |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Glu | Asn | His | Pro | Thr | His | Ser | Ser | Pro | Leu | Asp | Thr | Ile | Tyr | Tyr | His |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Arg | Glu | Leu | Leu | Cys | Tyr | Ser | Leu | Asp | Gly | Leu | Arg | Val | Asp | Leu | Leu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Thr | Ile | Thr | Ser | Cys | His | Gly | Leu | Arg | Glu | Asp | Arg | Glu | Pro | Arg | Leu |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Glu | Gln | Leu | Phe | Pro | Asp | Thr | Ser | Thr | Pro | Arg | Pro | Phe | Arg | Phe | Ala |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 225 |     | 230 |     | 235 |     | 240 |     |     |     |     |     |     |     |     |     |
| Gly | Lys | Arg | Ile | Phe | Phe | Leu | Ser | Ser | Arg | Val | His | Pro | Gly | Glu | Thr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Pro | Ser | Ser | Phe | Val | Phe | Asn | Gly | Phe | Leu | Asp | Phe | Ile | Leu | Arg | Pro |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Asp | Asp | Pro | Arg | Ala | Gln | Thr | Leu | Arg | Arg | Leu | Phe | Val | Phe | Lys | Leu |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Ile | Pro | Met | Leu | Asn | Pro | Asp | Gly | Val | Val | Arg | Gly | His | Tyr | Arg | Thr |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Asp | Ser | Arg | Gly | Val | Asn | Leu | Asn | Arg | Gln | Tyr | Leu | Lys | Pro | Asp | Ala |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     | 320 |     |
| Val | Leu | His | Pro | Ala | Ile | Tyr | Gly | Ala | Lys | Ala | Val | Leu | Leu | Tyr | His |
|     |     |     |     | 325 |     |     |     | 330 |     |     |     |     |     | 335 |     |
| His | Val | His | Ser | Arg | Leu | Asn | Ser | Gln | Ser | Ser | Ser | Glu | His | Gln | Pro |
|     |     |     | 340 |     |     |     | 345 |     |     |     |     | 350 |     |     |     |
| Ser | Ser | Cys | Leu | Pro | Pro | Asp | Ala | Pro | Val | Ser | Asp | Leu | Glu | Lys | Ala |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Asn | Asn | Leu | Gln | Asn | Glu | Ala | Gln | Cys | Gly | His | Ser | Ala | Asp | Arg | His |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Asn | Ala | Glu | Ala | Trp | Lys | Gln | Thr | Glu | Pro | Ala | Glu | Gln | Lys | Leu | Asn |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     | 400 |     |
| Ser | Val | Trp | Ile | Met | Pro | Gln | Gln | Ser | Ala | Gly | Leu | Glu | Glu | Ser | Ala |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Pro | Asp | Thr | Ile | Pro | Pro | Lys | Glu | Ser | Gly | Val | Ala | Tyr | Tyr | Val | Asp |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Leu | His | Gly | His | Ala | Ser | Lys | Arg | Gly | Cys | Phe | Met | Tyr | Gly | Asn | Ser |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Phe | Ser | Asp | Glu | Ser | Thr | Gln | Val | Glu | Asn | Met | Leu | Tyr | Pro | Lys | Leu |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Ile | Ser | Leu | Asn | Ser | Ala | His | Phe | Asp | Phe | Gln | Gly | Cys | Asn | Phe | Ser |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     | 480 |     |
| Glu | Lys | Asn | Met | Tyr | Ala | Arg | Asp | Arg | Arg | Asp | Gly | Gln | Ser | Lys | Glu |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |     |
| Gly | Ser | Gly | Arg | Val | Ala | Ile | Tyr | Lys | Ala | Ser | Gly | Ile | Ile | His | Ser |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Tyr | Thr | Leu | Glu | Cys | Asn | Tyr | Asn | Thr | Gly | Arg | Ser | Val | Asn | Ser | Ile |
|     | 515 |     |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Pro | Ala | Ala | Cys | His | Asp | Asn | Gly | Arg | Ala | Ser | Pro | Pro | Pro | Pro | Pro |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Ala | Phe | Pro | Ser | Arg | Tyr | Thr | Val | Glu | Leu | Phe | Glu | Gln | Val | Gly | Arg |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     | 560 |     |
| Ala | Met | Ala | Ile | Ala | Ala | Leu | Asp | Met | Ala | Glu | Cys | Asn | Pro | Trp | Pro |
|     |     |     | 565 |     |     |     |     | 570 |     |     |     |     |     | 575 |     |
| Arg | Ile | Val | Leu | Ser | Glu | His | Ser | Ser | Leu | Thr | Asn | Leu | Arg | Ala | Trp |
|     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |     |
| Met | Leu | Lys | His | Val | Arg | Asn | Ser | Arg | Gly | Leu | Ser | Ser | Thr | Leu | Asn |
|     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |     |
| Val | Gly | Val | Asn | Lys | Lys | Arg | Gly | Leu | Arg | Thr | Pro | Pro | Lys | Ser | His |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |
| Asn | Gly | Leu | Pro | Val | Ser | Cys | Ser | Glu | Asn | Thr | Leu | Ser | Arg | Ala | Arg |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     | 640 |     |
| Ser | Phe | Ser | Thr | Gly | Thr | Ser | Ala | Gly | Gly | Ser | Ser | Ser | Ser | Gln | Gln |
|     |     |     | 645 |     |     |     |     | 650 |     |     |     |     |     | 655 |     |
| Asn | Ser | Pro | Gln | Met | Lys | Asn | Ser | Pro | Ser | Phe | Pro | Phe | His | Gly | Ser |

|            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 4304 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Thr        | Arg | Ala | Ala | Arg | Glu | Leu | Asp | Asn | Leu | Gln | Tyr | Arg | Lys | Met | Lys |
| 1          |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Lys        | Leu | Leu | Phe | Gln | Glu | Ala | His | Asn | Gly | Pro | Ala | Val | Glu | Ala | Gln |
|            |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu        | Glu | Glu | Glu | Glu | Gln | Asp | His | Gly | Val | Gly | Arg | Thr | Gly | Thr | Val |
|            |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Asn        | Ser | Val | Gly | Ser | Asn | Gln | Ser | Ile | Pro | Ser | Met | Ser | Ile | Ser | Ala |

|                     |                         |                         |
|---------------------|-------------------------|-------------------------|
| 50                  | 55                      | 60                      |
| Ser Ser Gln Ser Ser | Ser Val Asn Ser Leu Pro | Asp Val Ser Asp Asp     |
| 65                  | 70                      | 75                      |
| Lys Ser Glu Leu Asp | Met Met Glu Gly Asp     | His Thr Val Met Ser Asn |
| 85                  | 90                      | 95                      |
| Ser Ser Val Ile His | Leu Lys Pro Glu Glu     | Glu Asn Tyr Arg Glu Glu |
| 100                 | 105                     | 110                     |
| Gly Asp Pro Arg Thr | Arg Ala Ser Asp Pro     | Gln Ser Pro Pro Gln Val |
| 115                 | 120                     | 125                     |
| Ser Arg His Lys Ser | His Tyr Arg Asn Arg     | Glu His Phe Ala Thr Ile |
| 130                 | 135                     | 140                     |
| Arg Thr Ala Ser Leu | Val Thr Arg Gln Met     | Gln Glu His Glu Gln Asp |
| 145                 | 150                     | 155                     |
| Ser Glu Leu Arg Glu | Gln Met Ser Gly Tyr     | Lys Arg Met Arg Arg Gln |
| 165                 | 170                     | 175                     |
| His Gln Lys Gln Leu | Met Thr Leu Glu Asn     | Lys Leu Lys Ala Glu Met |
| 180                 | 185                     | 190                     |
| Asp Glu His Arg Leu | Arg Leu Asp Lys Asp     | Leu Glu Thr Gln Arg Asn |
| 195                 | 200                     | 205                     |
| Asn Phe Ala Ala Glu | Met Glu Lys Leu Ile     | Lys Lys His Gln Ala Ala |
| 210                 | 215                     | 220                     |
| Met Glu Lys Glu Ala | Lys Val Met Ser Asn     | Glu Glu Lys Lys Phe Gln |
| 225                 | 230                     | 235                     |
| Gln His Ile Gln Ala | Gln Gln Lys Lys Glu     | Leu Asn Ser Phe Leu Glu |
| 245                 | 250                     | 255                     |

&lt;210&gt; 4305

&lt;211&gt; 3400

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4305

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 120  
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 180  
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 420  
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 600  
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 660

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&lt;211&gt; 1052

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4306

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| Thr | Leu | Thr | Ala | Ala | Gly | Ala | Cys | Pro | Gly | Ala | Gly | Ala | Asp | Ala | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Glu | Ser | Pro | Ala | Ser | Pro | Gln | Leu | Val | Leu | Pro | Ala | Asn | Leu | Gly | Asp |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ile | Glu | Ala | Leu | Asn | Leu | Gly | Asn | Asn | Gly | Leu | Glu | Glu | Val | Pro | Glu |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     | 70  |     | 75  |     | 80  |     |     |     |     |     |     |     |     |     |
| Gly | Leu | Gly | Ser | Ala | Leu | Gly | Ser | Leu | Arg | Val | Leu | Val | Leu | Arg | Arg |
|     |     | 85  |     |     |     | 90  |     |     |     |     |     |     | 95  |     |     |
| Asn | Arg | Phe | Ala | Arg | Leu | Pro | Pro | Ala | Val | Ala | Glu | Leu | Gly | His | His |
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| Leu | Thr | Glu | Leu | Asp | Val | Ser | His | Asn | Arg | Leu | Thr | Ala | Leu | Gly | Ala |
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| Glu | Val | Val | Ser | Ala | Leu | Arg | Glu | Leu | Arg | Lys | Leu | Asn | Leu | Ser | His |
|     |     | 130 |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |
| Asn | Gln | Leu | Pro | Ala | Leu | Pro | Ala | Gln | Leu | Gly | Ala | Leu | Ala | His | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Glu | Glu | Leu | Asp | Val | Ser | Phe | Asn | Arg | Leu | Ala | His | Leu | Pro | Asp | Ser |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Leu | Ser | Cys | Leu | Ser | Arg | Leu | Arg | Thr | Leu | Asp | Val | Asp | His | Asn | Gln |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Leu | Thr | Ala | Phe | Pro | Arg | Gln | Leu | Gln | Leu | Val | Ala | Leu | Glu | Glu |     |
|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Leu | Asp | Val | Ser | Ser | Asn | Arg | Leu | Arg | Gly | Leu | Pro | Glu | Asp | Ile | Ser |
|     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |
| Ala | Leu | Arg | Ala | Leu | Lys | Ile | Leu | Trp | Leu | Ser | Gly | Ala | Glu | Leu | Gly |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Thr | Leu | Pro | Ala | Gly | Phe | Cys | Glu | Leu | Ala | Ser | Leu | Glu | Ser | Leu | Met |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Leu | Asp | Asn | Asn | Gly | Leu | Gln | Ala | Leu | Pro | Ala | Gln | Phe | Ser | Cys | Leu |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Gln | Arg | Leu | Lys | Met | Leu | Asn | Leu | Ser | Ser | Asn | Leu | Phe | Glu | Glu | Phe |
|     | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Pro | Ala | Ala | Leu | Leu | Pro | Leu | Ala | Gly | Leu | Glu | Glu | Leu | Tyr | Leu | Ser |
|     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |     |
| Arg | Asn | Gln | Leu | Thr | Ser | Val | Pro | Ser | Leu | Ile | Ser | Gly | Leu | Gly | Arg |
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| Leu | Leu | Thr | Leu | Trp | Leu | Asp | Asn | Asn | Arg | Ile | Arg | Tyr | Leu | Pro | Asp |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Ser | Ile | Val | Glu | Leu | Thr | Gly | Leu | Glu | Glu | Leu | Val | Leu | Gln | Gly | Asn |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Gln | Ile | Ala | Val | Leu | Pro | Asp | His | Phe | Gly | Gln | Leu | Ser | Arg | Val | Gly |
|     |     | 355 |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |
| Leu | Trp | Lys | Ile | Lys | Asp | Asn | Pro | Leu | Ile | Gln | Pro | Pro | Tyr | Glu | Val |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
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| His | Ser | Gln | Pro | Ala | Val | Gln | Pro | Arg | Leu | Lys | Leu | Leu | Leu | Met | Gly |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |
| His | Lys | Ala | Ala | Gly | Lys | Thr | Leu | Leu | Arg | His | Cys | Leu | Thr | Glu | Glu |
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| Arg | Val | Glu | Gly | Cys | Pro | Gly | Gly | Asp | Lys | Glu | Lys | Cys | Tyr | Pro |     |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Pro | Ser | Pro | Pro | Pro | Val | Ser | Lys | Gly | Ile | Glu | Val | Thr | Ser | Trp | Thr |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Ala | Asp | Ala | Ser | Arg | Gly | Leu | Arg | Phe | Ile | Val | Tyr | Asp | Leu | Ala | Gly |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Asp | Glu | Ser | Tyr | Glu | Val | Ile | Gln | Pro | Phe | Phe | Leu | Ser | Pro | Gly | Ala |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |     |
| Leu | Tyr | Val | Leu | Val | Val | Asn | Leu | Ala | Thr | Tyr | Glu | Pro | Arg | His | Phe |

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| His Tyr Thr Val His Ile Leu Cys Ser Lys Cys Leu Lys Arg Gly Ser |      |      |      | 975  |
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| Asn Val Ala Leu Val Tyr Pro Pro Thr Pro Thr Val Ile Ser Pro Cys |      |      |      | 1020 |
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| Gly | Pro | Pro | Cys | Leu | Phe | Lys | Gly | His | Leu | Ser | Thr | Lys | Ser | Asn | Ala |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Phe | Cys | Thr | Asp | Ser | Ser | Ser | Leu | Arg | Leu | Ser | Thr | Leu | Gln | Leu | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Lys | Asn | His | Met | Ala | Val | His | Tyr | Asn | Lys | Ile | Leu | Ser | Ala | Lys | Ala |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ala | Val | Asp | Cys | Ser | Val | Pro | Val | Ser | Val | Ser | Thr | Ser | Ile | Lys | Tyr |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ala | Asp | Gln | Gln | Arg | Arg | Glu | Lys | Leu | Lys | Lys | Glu | Leu | Ala | Gln | Cys |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Glu | Lys | Glu | Phe | Lys | Leu | Thr | Lys | Thr | Ala | Met | Arg | Ala | Asn | Tyr | Lys |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn | Asn | Ser | Lys | Ser | Leu | Phe | Asn | Thr | Leu | Gln | Lys | Pro | Ser | Gly | Glu |
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| Pro | Gln | Ile | Glu | Asp | Asp | Met | Leu | Lys | Glu | Glu | Met | Asn | Gly | Phe | Ser |
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| Ser | Phe | Ala | Arg | Ser | Leu | Val | Pro | Ser | Ser | Glu | Arg | Leu | His | Leu | Ser |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Leu | His | Lys | Ser | Ser | Lys | Val | Ile | Thr | Asn | Gly | Pro | Glu | Lys | Asn | Ser |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ser | Ser | Ser | Pro | Ser | Ser | Val | Asp | Tyr | Ala | Ala | Ser | Gly | Pro | Arg | Lys |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Leu | Ser | Ser | Gly | Ala | Leu | Tyr | Gly | Arg | Arg | Pro | Arg | Ser | Thr | Phe | Pro |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Asn | Ser | His | Arg | Phe | Gln | Leu | Val | Ile | Ser | Lys | Ala | Pro | Ser | Gly | Asp |
|     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |
| Leu | Leu | Asp | Lys | His | Ser | Glu | Leu | Phe | Ser | Asn | Lys | Gln | Leu | Pro | Phe |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Thr | Pro | Arg | Thr | Leu | Lys | Thr | Glu | Ala | Lys | Ser | Phe | Leu | Ser | Gln | Tyr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Arg | Tyr | Tyr | Thr | Pro | Ala | Lys | Arg | Lys | Lys | Asp | Phe | Thr | Asp | Gln | Arg |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ile | Glu | Ala | Glu | Thr | Gln | Thr | Glu | Leu | Ser | Phe | Lys | Ser | Glu | Leu | Gly |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Thr | Ala | Glu | Thr | Lys | Asn | Met | Thr | Asp | Ser | Glu | Met | Asn | Ile | Lys | Gln |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Ala | Ser | Asn | Cys | Val | Thr | Tyr | Asp | Ala | Lys | Glu | Lys | Ile | Ala | Pro | Leu |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     | 320 |     |
| Pro | Leu | Glu | Gly | His | Asp | Ser | Thr | Trp | Asp | Glu | Ile | Lys | Asp | Asp | Ala |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Leu | Gln | His | Ser | Ser | Pro | Arg | Ala | Met | Cys | Gln | Tyr | Ser | Leu | Lys | Pro |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Pro | Ser | Thr | Arg | Lys | Ile | Tyr | Ser | Asp | Glu | Glu | Glu | Leu | Leu | Tyr | Leu |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Ser | Phe | Ile | Glu | Asp | Val | Thr | Asp | Glu | Ile | Leu | Lys | Leu | Gly | Leu | Phe |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Ser | Asn | Arg | Phe | Leu | Glu | Arg | Leu | Phe | Glu | Arg | His | Ile | Lys | Gln | Asn |

385                      390                      395                      400  
 Lys His Leu Glu Glu Glu Lys Met Arg His Leu Leu His Val Leu Lys  
                                  405                      410                      415  
 Val Asp Leu Gly Cys Thr Ser Glu Glu Asn Ser Val Lys Gln Asn Asp  
                                  420                      425                      430  
 Val Asp Met Leu Asn Val Phe Asp Phe Glu Lys Ala Gly Asn Ser Glu  
                                  435                      440                      445  
 Pro Asn Glu Leu Lys Asn Glu Ser Glu Val Thr Ile Gln Gln Glu Arg  
                                  450                      455                      460  
 Gln Gln Tyr Gln Lys Ala Leu Asp Met Leu Leu Ser Ala Pro Lys Asp  
 465                      470                      475                      480  
 Glu Asn Glu Ile Phe Pro Ser Pro Thr Glu Phe Phe Met Pro Ile Tyr  
                                  485                      490                      495  
 Lys Ser Lys His Ser Glu Gly Val Ile Ile Gln Gln Val Asn Asp Glu  
                                  500                      505                      510  
 Thr Asn Leu Glu Thr Ser Thr Leu Asp Glu Asn His Pro Ser Ile Ser  
                                  515                      520                      525  
 Asp Ser Leu Thr Asp Arg Glu Thr Ser Val Asn Val Ile Glu Gly Asp  
                                  530                      535                      540  
 Ser Asp Pro Glu Lys Val Glu Ile Ser Asn Gly Leu Cys Gly Leu Asn  
 545                      550                      555                      560  
 Thr Ser Pro Ser Gln Ser Val Gln Phe Ser Ser Val Lys Gly Asp Asn  
                                  565                      570                      575  
 Asn His Asp Met Glu Leu Ser Thr Leu Lys Ile Met Glu Met Ser Ile  
                                  580                      585                      590  
 Glu Asp Cys Pro Leu Asp Val  
                                  595

<210> 4311  
 <211> 432  
 <212> DNA  
 <213> Homo sapiens

<400> 4311  
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 120  
 aaaaacataa ccactggggc atctgcagca tcccagactc agatgcctac gggccagaca  
 180  
 ggcaactgtg agtccccctt agggagcaag gaggacctca actccaaaga gaacctggat  
 240  
 gccgatgagg gagatgggaa aagtaacgac ctcgtcctta gttgtcctta ctttagaaat  
 300  
 gagactggag gggaaggcga caggcggatt gcgctctctc gagccaactc atcctctttc  
 360  
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 420  
 gtctccgtct tg  
 432

<210> 4312  
 <211> 144  
 <212> PRT

<213> Homo sapiens

<400> 4312

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Xaa Arg Val Lys Gly Ile Arg Pro Trp Asn Cys Gln Arg Cys Phe Ala
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His Tyr Asp Val Gln Ser Ile Leu Phe Asn Ile Asn Glu Ala Met Ala
 20           25           30
Thr Arg Ala Asn Val Gly Lys Arg Lys Asn Ile Thr Thr Gly Ala Ser
 35           40           45
Ala Ala Ser Gln Thr Gln Met Pro Thr Gly Gln Thr Gly Asn Cys Glu
 50           55           60
Ser Pro Leu Gly Ser Lys Glu Asp Leu Asn Ser Lys Glu Asn Leu Asp
 65           70           75           80
Ala Asp Glu Gly Asp Gly Lys Ser Asn Asp Leu Val Leu Ser Cys Pro
 85           90           95
Tyr Phe Arg Asn Glu Thr Gly Gly Glu Gly Asp Arg Arg Ile Ala Leu
 100          105          110
Ser Arg Ala Asn Ser Ser Ser Phe Ser Ser Gly Glu Ser Cys Ser Phe
 115          120          125
Glu Ser Ser Leu Ser Ser His Cys Thr Asn Ala Gly Val Ser Val Leu
 130          135          140

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<210> 4313

<211> 936

<212> DNA

<213> Homo sapiens

<400> 4313

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agggtgctgcc tgacagggttc ttctctccct gtctctggtc attgatccat ctctttgtcc
 120
attcagtatc caaccatcct ctccattctc ctctggacct caccactctc agagctgctt
 180
gtcctggcag aatctacagt tcacccaac tctatgcctt acccctccca acccaacagc
 240
at ttgcagtt tgcaaaatat acagacccaa gtctgaggg gactgaggac atgatgctgg
 300
gcccaagtct cctgctcagg gcttctctcc aatgccagcc ctgccactcc ttcctcaccc
 360
tccttgagac ctctctgct gcttgtctat cccaacggcc ctgctccct ccttctctgc
 420
ccttcaccag ctttctggga caccatgccc tgaggaaggg acctttgggt ttctctaaac
 480
atctttgaag ggctgaggca gtcagggctg gctgccttgt cactctttat ttggaagcca
 540
ctcaaaccat tccaagaag agggacctca gctggcaatc tggaaacctg gcccaaggtct
 600
gggcagatgt cttcaattct cctaccttcc cagtcttggt atcctgtgat gaccaccagg
 660
atggccctgt ggtccctaga gcacccctca tgctgtaggg tctgcagcc ccataccttc
 720
tctactgggc cctggatatcc tggctcctct ctacgtctg ccactgatct ctgtgcctta
 780

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gtttacttct ctgcacgggg gactcacccc aagaccattt ccagcagctt cccaggtgat  
840  
gtgggtgcccc aaggctgggc tttgcagctg tggcccagct ccttagtgct gcccaggaga  
900  
caccaggctg ctcagaatga ggtgactgcg ggcaac  
936

<210> 4314

<211> 110

<212> PRT

<213> Homo sapiens

<400> 4314

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Ser | Leu | Leu | Leu | Pro | Ser | Gln | Ser | Cys | Asp | Pro | Val | Met | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Arg | Met | Ala | Leu | Trp | Ser | Leu | Glu | His | Pro | Ser | Cys | Cys | Arg | Val |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Gln | Pro | His | Pro | Phe | Ser | Thr | Gly | Pro | Trp | Tyr | Pro | Gly | Ser | Ser |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Ser | Ser | Ala | Thr | Asp | Leu | Cys | Ala | Leu | Val | Tyr | Phe | Ser | Ala | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Thr | His | Pro | Lys | Thr | Ile | Ser | Ser | Ser | Phe | Pro | Gly | Asp | Val | Val |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Pro | Gln | Gly | Trp | Ala | Leu | Gln | Leu | Trp | Pro | Ser | Ser | Leu | Val | Leu | Pro |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Arg | Arg | His | Gln | Ala | Ala | Gln | Asn | Glu | Val | Thr | Ala | Gly | Asn |     |     |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |

<210> 4315

<211> 573

<212> DNA

<213> Homo sapiens

<400> 4315

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120  
cacctaccat ccaagccatg gtcaccttca ccaagccaca gtcactctacc atccaagcca  
180  
ccgtcaccta ccatccaage catggccacc tacctgcca gccatggcca cctaccgccc  
240  
aagccatggt cacctaccca ccaagtcatg gtgcctacc atccaaggag caggcctgga  
300  
acagatcctt cccagagacc ctcatgtagga gccaaccttg ctgacacctt gatctcagac  
360  
ttcaagcctc cagaactgtg ggacaatcct tcaactgtcat ttaatccacc cagcatgtgg  
420  
tctcttgtca cagttgcatt agccagtga cctaccggg cccttctgca gtgcctggc  
480  
tcaggagtgg ttctggtcag gaagttctga ggccaggcag gatcgggaca ctccctggaa  
540  
agacccgagg gagatatttg ggaaacaaga tgg  
573

<210> 4316  
 <211> 169  
 <212> PRT  
 <213> Homo sapiens

<400> 4316  
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 His Arg Gln Ala Gln Ser Asp Asp His Val Lys Thr Gln Gly Arg Asp  
 20 25 30  
 Gly His Leu Pro Pro Arg His Gly His Leu Pro Ser Lys Pro Trp Ser  
 35 40 45  
 Pro Ser Pro Ser His Ser His Leu Pro Ser Lys Pro Pro Ser Pro Thr  
 50 55 60  
 Ile Gln Ala Met Ala Thr Tyr Leu Pro Ser His Gly His Leu Pro Ala  
 65 70 75 80  
 Lys Pro Trp Ser Pro Thr His Gln Val Met Val Ala Tyr His Pro Arg  
 85 90 95  
 Ser Arg Pro Gly Thr Asp Pro Ser Pro Glu Pro Ser Val Gly Ala Asn  
 100 105 110  
 Pro Ala Asp Thr Leu Ile Ser Asp Phe Lys Pro Pro Glu Leu Trp Asp  
 115 120 125  
 Asn Pro Ser Leu Ser Phe Asn Pro Pro Ser Met Trp Ser Leu Val Thr  
 130 135 140  
 Val Ala Leu Ala Ser Glu Pro Thr Arg Ala Leu Leu Gln Ser Pro Gly  
 145 150 155 160  
 Ser Gly Val Val Leu Val Arg Lys Phe  
 165

<210> 4317  
 <211> 744  
 <212> DNA  
 <213> Homo sapiens

<400> 4317  
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 tcccatgccg aaaacatact ccagatattt aatgaatttc gtgatagccg cttattcaca  
 120  
 gatgttatca tttgggtgga aggaaaagaa tttccttgcc atagagctgt gctctcagcc  
 180  
 tgtagcagct acttcagagc tatgttttgt aatgaccaca gggaaagccg agaaatgttg  
 240  
 gttgagatca atggtatttt agctgaagct atggaatggt ttttgcagta tgtttatact  
 300  
 ggaaagggtga agatcactac agagaatgta cagtatctct ttgagacatc aagcctcttt  
 360  
 cagattagtg ttctccgtga tgcagtgtgcc aagttcttgg aggagcaact tgatccttgt  
 420  
 aattgcttag gaatccagcg ctttgcgtgat acccattcac tcaaaacact cttcacaaaa  
 480  
 tgcaaaaaatt ttgcgttaca gacttttgag gatgtatccc agcacgaaga atttcttgag  
 540

cttgacaaag atgaacttat tgattatatt tgtagtgatg aacttggtat tggtaaagag  
 600  
 gagatgggtt ttgaagccgt catgcgttgg gtctatcgtg ccgttgatct gagaagacca  
 660  
 ctgttacacg agctcctgac acatgtgaga ctccctctgt tgcaccccaa ctactttgtt  
 720  
 caaacagttg aagtggacca attg  
 744

<210> 4318

<211> 239

<212> PRT

<213> Homo sapiens

<400> 4318

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Val | Arg | Asp | Leu | Gly | Ser | Ile | Ser | Gly | Ser | Ser | His | Ala | Glu | Asn |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Ile | Leu | Gln | Ile | Phe | Asn | Glu | Phe | Arg | Asp | Ser | Arg | Leu | Phe | Thr | Asp |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Val | Ile | Ile | Trp | Val | Glu | Gly | Lys | Glu | Phe | Pro | Cys | His | Arg | Ala | Val |
|     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Leu | Ser | Ala | Cys | Ser | Ser | Tyr | Phe | Arg | Ala | Met | Phe | Cys | Asn | Asp | His |
|     | 50  |     |     |     | 55  |     |     |     |     |     | 60  |     |     |     |     |
| Arg | Glu | Ser | Arg | Glu | Met | Leu | Val | Glu | Ile | Asn | Gly | Ile | Leu | Ala | Glu |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     |     | 80  |
| Ala | Met | Glu | Cys | Phe | Leu | Gln | Tyr | Val | Tyr | Thr | Gly | Lys | Val | Lys | Ile |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Thr | Thr | Glu | Asn | Val | Gln | Tyr | Leu | Phe | Glu | Thr | Ser | Ser | Leu | Phe | Gln |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |
| Ile | Ser | Val | Leu | Arg | Asp | Ala | Cys | Ala | Lys | Phe | Leu | Glu | Glu | Gln | Leu |
|     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Asp | Pro | Cys | Asn | Cys | Leu | Gly | Ile | Gln | Arg | Phe | Ala | Asp | Thr | His | Ser |
|     | 130 |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |     |
| Leu | Lys | Thr | Leu | Phe | Thr | Lys | Cys | Lys | Asn | Phe | Ala | Leu | Gln | Thr | Phe |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     |     | 160 |
| Glu | Asp | Val | Ser | Gln | His | Glu | Glu | Phe | Leu | Glu | Leu | Asp | Lys | Asp | Glu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Leu | Ile | Asp | Tyr | Ile | Cys | Ser | Asp | Glu | Leu | Val | Ile | Gly | Lys | Glu | Glu |
|     | 180 |     |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Met | Val | Phe | Glu | Ala | Val | Met | Arg | Trp | Val | Tyr | Arg | Ala | Val | Asp | Leu |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Arg | Arg | Pro | Leu | Leu | His | Glu | Leu | Leu | Thr | His | Val | Arg | Leu | Pro | Leu |
|     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |
| Leu | His | Pro | Asn | Tyr | Phe | Val | Gln | Thr | Val | Glu | Val | Asp | Gln | Leu |     |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     |     |

<210> 4319

<211> 388

<212> DNA

<213> Homo sapiens

<400> 4319

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ccaggccgta gccacagcaa ggaccgaacc ctgggaaaac cagacagcct tttagtgcct  
 120  
 gcagtcgcaa gtgactcttg caataatagc atctcactcc tatctgaaaa gttgacaagc  
 180  
 agctgttccc cccatcatat caagagaagt gtagtggaag ctatgcaacg ccaagctcgg  
 240  
 aaaatgtgca attacgacaa aatcttg gcc acaaagaaaa acctagacca tgtcaataaa  
 300  
 atcttaaaag ccaaaaaaact tcaaaggcag gccaggacag ggaataactt tgtgaaacgt  
 360  
 aggccaggtc gaccgcggtc ggagagag  
 388

<210> 4320  
 <211> 129  
 <212> PRT  
 <213> Homo sapiens

<400> 4320  
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 Pro Ser Ser Ser Pro Gly Arg Ser His Ser Lys Asp Arg Thr Leu Gly  
 20 25 30  
 Lys Pro Asp Ser Leu Leu Val Pro Ala Val Ala Ser Asp Ser Cys Asn  
 35 40 45  
 Asn Ser Ile Ser Leu Leu Ser Glu Lys Leu Thr Ser Ser Cys Ser Pro  
 50 55 60  
 His His Ile Lys Arg Ser Val Val Glu Ala Met Gln Arg Gln Ala Arg  
 65 70 75 80  
 Lys Met Cys Asn Tyr Asp Lys Ile Leu Ala Thr Lys Lys Asn Leu Asp  
 85 90 95  
 His Val Asn Lys Ile Leu Lys Ala Lys Lys Leu Gln Arg Gln Ala Arg  
 100 105 110  
 Thr Gly Asn Asn Phe Val Lys Arg Arg Pro Gly Arg Pro Arg Ser Glu  
 115 120 125  
 Arg

<210> 4321  
 <211> 278  
 <212> DNA  
 <213> Homo sapiens

<400> 4321  
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 gaccaggctc cttggtgaga agaccaccac agcggcaggg tccagccaca gcaggcccgg  
 120  
 cgtcccgggtg gaaggcagcc ctgggcggaa cccaggcggt taacggctca ctaggcagcc  
 180  
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 240  
 gccgcctgc ccccatcccc tccaggccac gttttaga  
 278

<210> 4322  
<211> 85  
<212> PRT  
<213> Homo sapiens

<400> 4322  
Met Gly Ala Gly Gly His Lys Thr Ser Ala Gln Leu Thr Pro Ala Pro  
1 5 10 15  
His Val Leu Ile Cys Ser Pro Asp Leu Gly Leu Pro Ser Glu Pro Leu  
20 25 30  
Asn Ala Trp Val Pro Pro Arg Ala Ala Phe His Arg Asp Ala Gly Pro  
35 40 45  
Ala Val Ala Gly Pro Cys Arg Cys Gly Gly Leu Leu Thr Lys Glu Pro  
50 55 60  
Gly Leu Ala Ala Trp Asn Asn Leu Gln Val Gly Val Leu Arg Gly Leu  
65 70 75 80  
Trp Gln Val Leu Gly  
85

<210> 4323  
<211> 1542  
<212> DNA  
<213> Homo sapiens

<400> 4323  
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ctgaaagact cgacattcag ccagttttagc ccgatctcca gtgctgaaga gtttgatgac  
120  
gacgagaaga ttgaggtgga tgacccccct gacaaggagg acatgcatc aagcttcagg  
180  
tcgaatgtgt tgacgggggtc ggctccccag caggactacg ataagctgaa ggcactcgga  
240  
ggggaaaact ccagcaaac tggactctct acgtcaggca atgtggagaa aaacaaagct  
300  
gttaagagag aaacagaagc cagttctata aacctgagtg tttatgaacc ttttaaagtc  
360  
agaaaagcag aggataaatt gaaggaaagc tctgacaagg tgctggaaaa cagagtccta  
420  
gatgggaagc tgagctccga gaagaatgac accagcctcc ccagcgttgc gccatcaaag  
480  
acaaagtcgt cctccaagct ctctgctctgc atcgtgcca tcgcggtct cagcgctaaa  
540  
aaggcggctt cagactcctg caaagaacca gtggccaatt cgagggaatc ctccccgtta  
600  
ccaaaagaag taaatgacag tccgagagcc gctgacaagt ctctgaatc ccagaatctc  
660  
atcgacggga ccaaaaaacc atccctgaag caaccggata gtcccagaag catctcaagt  
720  
gagaacagca gcaaaggatc cccgtctct cccgcgggggt ccacaccagc aatccccaaa  
780  
gtccgcataa aaaccattaa gacatcttct ggggaaatca agagaacagt gaccagggtta  
840

ttgccagaag tggatcttga ctctggaaag aaaccttccg agcagacagc gtccgtcatg  
 900  
 gcctctgtga catcccttct gtctgtctcca gcatcagccg ccgtcctttc ctctcccccc  
 960  
 agggcgcttc tccagtctgc ggtcgtgacc aatgcagttt cccctgcaga gtcaccccc  
 1020  
 aaacaggtca caatcaagcc tgtggctact gctttcctcc cagtgtctgc tgtgaagacg  
 1080  
 gcaggatccc aagtcattaa tttgaagctc gctaacaaca ccacggtgaa agccacggtc  
 1140  
 atatctgctg cctctgtcca gagtgccagc agcgccatca ttaaagctgc caacgccatc  
 1200  
 cagcagcaaa ctgtctgggt gccggcatcc agcctggcca atgccaaact cgtgccaaag  
 1260  
 actgtgcacc ttgccaacct taaccttttg cctcaggggtg cccaggccac ctctgaactc  
 1320  
 cgccaagtgc taaccaaacc tcagcaacaa ataaagcagg caataatcaa tgcagcagcc  
 1380  
 tcgcaacccc ccaaaaaggt gtctcgagtc caggtgggtg cgtccttgca gagttctgtg  
 1440  
 gtggaagctt tcaacaaggt gctgagcagt gtcaatccag tccctgttta catcccaaac  
 1500  
 ctcatcctc cgcgaatgc agggatcacg ttaccgacgc gt  
 1542

<210> 4324

<211> 514

<212> PRT

<213> Homo sapiens

<400> 4324

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Tyr | Ser | Lys | Asp | Gly | Ala | Lys | Ser | Leu | Lys | Gly | Asp | Val | Pro | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Glu | Val | Thr | Leu | Lys | Asp | Ser | Thr | Phe | Ser | Gln | Phe | Ser | Pro | Ile |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Ser | Ala | Glu | Glu | Phe | Asp | Asp | Asp | Glu | Lys | Ile | Glu | Val | Asp | Asp |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Pro | Pro | Asp | Lys | Glu | Asp | Met | Arg | Ser | Ser | Phe | Arg | Ser | Asn | Val | Leu |
|     | 50  |     |     |     | 55  |     |     |     |     |     | 60  |     |     |     |     |
| Thr | Gly | Ser | Ala | Pro | Gln | Gln | Asp | Tyr | Asp | Lys | Leu | Lys | Ala | Leu | Gly |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gly | Glu | Asn | Ser | Ser | Lys | Thr | Gly | Leu | Ser | Thr | Ser | Gly | Asn | Val | Glu |
|     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |
| Lys | Asn | Lys | Ala | Val | Lys | Arg | Glu | Thr | Glu | Ala | Ser | Ser | Ile | Asn | Leu |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Ser | Val | Tyr | Glu | Pro | Phe | Lys | Val | Arg | Lys | Ala | Glu | Asp | Lys | Leu | Lys |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Glu | Ser | Ser | Asp | Lys | Val | Leu | Glu | Asn | Arg | Val | Leu | Asp | Gly | Lys | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Ser | Glu | Lys | Asn | Asp | Thr | Ser | Leu | Pro | Ser | Val | Ala | Pro | Ser | Lys |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Thr | Lys | Ser | Ser | Ser | Lys | Leu | Ser | Ser | Cys | Ile | Ala | Ala | Ile | Ala | Ala |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Leu | Ser | Ala | Lys | Lys | Ala | Ala | Ser | Asp | Ser | Cys | Lys | Glu | Pro | Val | Ala |

[illegible]

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<210> 4325
<211> 1405
<212> DNA
<213> Homo sapiens
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120
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 1405

&lt;210&gt; 4326

&lt;211&gt; 336

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4326

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Phe | Phe | Leu | Pro | Gln | Val | Leu | Leu | Ala | Trp | Ser | Gly | Gly | Pro | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Ser | Ser | Met | Val | Trp | Gln | Val | Leu | Glu | Gly | Leu | Ser | Gln | Asp | Ser |

|                             |                         |             |
|-----------------------------|-------------------------|-------------|
| 20                          | 25                      | 30          |
| Ala Lys Arg Leu Arg Phe Val | Ala Gly Val Ile Phe Val | Asp Glu Gly |
| 35                          | 40                      | 45          |
| Ala Ala Cys Gly Gln Ser Leu | Glu Glu Arg Ser Lys Thr | Leu Ala Glu |
| 50                          | 55                      | 60          |
| Val Lys Pro Ile Leu Gln Ala | Thr Gly Phe Pro Trp His | Val Val Ala |
| 65                          | 70                      | 75          |
| Leu Glu Glu Val Phe Ser Leu | Pro Pro Ser Val Leu Trp | Cys Ser Ala |
| 85                          | 90                      | 95          |
| Gln Glu Leu Val Gly Ser Glu | Gly Ala Tyr Lys Ala Ala | Val Asp Ser |
| 100                         | 105                     | 110         |
| Phe Leu Gln Gln Gln Tyr Val | Leu Gly Ala Gly Gly Gly | Pro Gly Pro |
| 115                         | 120                     | 125         |
| Thr Gln Gly Glu Glu Gln Pro | Gln Pro Pro Leu Asp     | Pro Gln Asn |
| 130                         | 135                     | 140         |
| Leu Ala Arg Pro Pro Ala Pro | Ala Gln Thr Glu Ala Leu | Ser Gln Leu |
| 145                         | 150                     | 155         |
| Phe Cys Ser Val Arg Thr Leu | Thr Ala Lys Glu Glu Leu | Leu Gln Thr |
| 165                         | 170                     | 175         |
| Leu Arg Thr His Leu Ile Leu | His Met Ala Arg Ala His | Gly Tyr Ser |
| 180                         | 185                     | 190         |
| Lys Val Met Thr Gly Asp Ser | Cys Thr Arg Leu Ala Ile | Lys Leu Met |
| 195                         | 200                     | 205         |
| Thr Asn Leu Ala Leu Gly Arg | Gly Ala Phe Leu Ala Trp | Asp Thr Gly |
| 210                         | 215                     | 220         |
| Phe Ser Asp Glu Arg His Gly | Asp Val Val Val Val Arg | Pro Met Arg |
| 225                         | 230                     | 235         |
| Asp His Thr Leu Lys Glu Val | Ala Phe Tyr Asn Arg Leu | Phe Ser Val |
| 245                         | 250                     | 255         |
| Pro Ser Val Phe Thr Pro Ala | Val Asp Thr Lys Ala Pro | Glu Lys Ala |
| 260                         | 265                     | 270         |
| Ser Ile His Arg Leu Met Glu | Ala Phe Ile Leu Arg Leu | Gln Thr Gln |
| 275                         | 280                     | 285         |
| Phe Pro Ser Thr Val Ser Thr | Val Tyr Arg Cys Val Trp | Val Cys Ala |
| 290                         | 295                     | 300         |
| Gly Gly Ala Arg Val Cys Ala | Val Cys Gly Cys Val Arg | Val Val Ser |
| 305                         | 310                     | 315         |
| Ser Pro Leu Val Leu Arg Pro | Gly Leu Arg Val Glu Pro | Gln Pro Val |
| 325                         | 330                     | 335         |

&lt;210&gt; 4327

&lt;211&gt; 551

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4327

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180

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240

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<210> 4328

<211> 107

<212> PRT

<213> Homo sapiens

<400> 4328

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Ser | Arg | Val | Gln | Ala | Pro | Ser | Trp | Gln | Ala | Arg | Ala | Val | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Thr | Leu | Leu | Ser | Gln | Arg | Trp | Val | Cys | Pro | Ile | Val | Val | Ser | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | Thr | Ser | Ser | Pro | Trp | Leu | Cys | Gly | Leu | Ser | Val | Ser | His | Pro | Gln |
|     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |     |
| His | Leu | Asp | Gly | Leu | Arg | Val | Arg | Ala | Lys | Val | Arg | Arg | Pro | Gly | His |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| His | Thr | Ile | Pro | Ala | Thr | Thr | Arg | Trp | Leu | Phe | Leu | Glu | Ser | Glu | Gly |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Gly | Arg | Arg | Cys | Leu | Gly | Ser | Trp | Gly | Cys | Leu | Gly | Ser | Glu | Pro | Val |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Arg | Val | Ser | Pro | Ala | Cys | Pro | Ser | Ile | Ser | Trp |     |     |     |     |     |
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<210> 4329

<211> 3192

<212> DNA

<213> Homo sapiens

<400> 4329

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420

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900  
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 3180  
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 3192

&lt;210&gt; 4330

&lt;211&gt; 371

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4330

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Gln | Pro | Lys | Gln | Lys | Glu | Leu | Ala | Gly | Ser | Val | Arg | Gln | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Met | Leu | Leu | Asp | Tyr | Ser | Val | Tyr | Met | Gly | Arg | Cys | Val | Pro | Gln | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Arg | Ser | Pro | Gln | Arg | Ser | Pro | Leu | Gln | Ser | Ala | Glu | Ser | Ser | Pro |
|     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |     |
| Thr | Ala | Gly | Lys | Lys | Leu | Pro | Glu | Val | Pro | Pro | Ser | Glu | Glu | Glu | Glu |

|   |   |     |     |    |  |
|---|---|-----|-----|----|--|
| 50  |   | 55  |     | 60 |  |
| Gln Glu Ala Trp Val   | Asn Ala Leu Leu Gly Arg Ile Phe Trp Asp Phe |     |     |    |  |
| 65  | 70  | 75  | 80  |    |  |
| Leu Gly Glu Lys Tyr Trp Ser Asp Leu Val Ser Lys Lys Ile Gln Met |   |     |     |    |  |
|   | 85  | 90  | 95  |    |  |
| Lys Leu Ser Lys Ile Lys Leu Pro Tyr Phe Met Asn Glu Leu Thr Leu |   |     |     |    |  |
|   | 100   | 105 | 110 |    |  |
| Thr Glu Leu Asp Met Gly Val Ala Val Pro Lys Ile Leu Gln Ala Phe |   |     |     |    |  |
|   | 115   | 120 | 125 |    |  |
| Lys Pro Tyr Val Asp His Gln Gly Leu Trp Ile Asp Leu Glu Met Ser |   |     |     |    |  |
|   | 130   | 135 | 140 |    |  |
| Tyr Asn Gly Ser Phe Leu Met Thr Leu Glu Thr Lys Met Asn Leu Pro |   |     |     |    |  |
| 145   | 150   | 155 | 160 |    |  |
| Lys Leu Gly Lys Glu Pro Leu Val Glu Ala Leu Lys Val Gly Glu Ile |   |     |     |    |  |
|   | 165   | 170 | 175 |    |  |
| Gly Lys Glu Gly Cys Arg Pro Arg Ala Phe Cys Leu Ala Asp Ser Asp |   |     |     |    |  |
|   | 180   | 185 | 190 |    |  |
| Glu Glu Ser Ser Ala Gly Ser Ser Glu Glu Asp Asp Ala Pro Glu     |   |     |     |    |  |
|   | 195   | 200 | 205 |    |  |
| Pro Ala Gly Glu Thr Asn Ser Ser Ser Gln Gly Glu Gly Tyr Val Gly |   |     |     |    |  |
|   | 210   | 215 | 220 |    |  |
| Gly His Arg Thr Ser Lys Ile Met Arg Phe Val Asp Lys Ile Thr Lys |   |     |     |    |  |
| 225   | 230   | 235 | 240 |    |  |
| Ser Lys Tyr Phe Gln Lys Ala Thr Glu Thr Glu Phe Ile Lys Arg Xaa |   |     |     |    |  |
|   | 245   | 250 | 255 |    |  |
| Ile Glu Glu Val Ser Asn Thr Pro Leu Leu Leu Thr Val Glu Val Gln |   |     |     |    |  |
|   | 260   | 265 | 270 |    |  |
| Glu Cys Arg Gly Thr Leu Ala Val Asn Ile Pro Pro Pro Pro Thr Asp |   |     |     |    |  |
|   | 275   | 280 | 285 |    |  |
| Arg Val Trp Tyr Gly Phe Arg Lys Pro Pro His Val Glu Leu Lys Ala |   |     |     |    |  |
| 290   | 295   | 300 |     |    |  |
| Arg Pro Lys Leu Gly Glu Arg Glu Val Thr Leu Val His Val Thr Asp |   |     |     |    |  |
| 305   | 310   | 315 | 320 |    |  |
| Trp Ile Glu Lys Lys Leu Glu Gln Glu Phe Gln Lys Val Phe Val Met |   |     |     |    |  |
|   | 325   | 330 | 335 |    |  |
| Pro Asn Met Asp Asp Val Tyr Ile Thr Ile Met His Ser Ala Met Asp |   |     |     |    |  |
|   | 340   | 345 | 350 |    |  |
| Pro Arg Ser Thr Ser Cys Leu Leu Lys Asp Pro Pro Val Glu Ala Ala |   |     |     |    |  |
|   | 355   | 360 | 365 |    |  |
| Asp Arg Pro   |   |     |     |    |  |
| 370   |   |     |     |    |  |

&lt;210&gt; 4331

&lt;211&gt; 1355

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4331

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120

gattttaaag agcctttgca cctcagtttc cttcagaatg ctgcaaaact atatgctaca  
180

gtatatgtga ttccatttgc agaagaggac ttatcagcag atgccctctt gaatattctt  
 240  
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 840  
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&lt;210&gt; 4332

&lt;211&gt; 345

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4332

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Lys | Tyr | Phe | Asn | His | Lys | Ala | Leu | Gln | Leu | Leu | His | Cys | Phe | Pro |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Leu | Asp | Ile | Arg | Leu | Lys | Asp | Gly | Ser | Leu | Phe | Trp | Gln | Ser | Pro | Lys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Pro | Pro | Ser | Pro | Ile | Lys | Phe | Asp | Leu | Asn | Glu | Pro | Leu | His | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ser | Phe | Leu | Gln | Asn | Ala | Ala | Lys | Leu | Tyr | Ala | Thr | Val | Tyr | Cys | Ile |

|                         |                     |                     |
|-------------------------|---------------------|---------------------|
| 50                      | 55                  | 60                  |
| Pro Phe Ala Glu Glu Asp | Leu Ser Ala Asp Ala | Leu Leu Asn Ile Leu |
| 65                      | 70                  | 75                  |
| Ser Glu Val Lys Ile Gln | Glu Phe Lys Pro Ser | Asn Lys Val Val Gln |
| 85                      | 90                  | 95                  |
| Thr Asp Glu Thr Ala Arg | Lys Pro Asp His Val | Pro Ile Ser Ser Glu |
| 100                     | 105                 | 110                 |
| Asp Glu Arg Asn Ala Ile | Phe Gln Leu Glu Lys | Ala Ile Leu Ser Asn |
| 115                     | 120                 | 125                 |
| Glu Ala Thr Lys Ser Asp | Leu Gln Met Ala Val | Leu Ser Phe Glu Lys |
| 130                     | 135                 | 140                 |
| Asp Asp Asp His Asn Gly | His Ile Asp Phe Ile | Thr Ala Ala Ser Asn |
| 145                     | 150                 | 155                 |
| Leu Arg Ala Lys Met Tyr | Ser Ile Glu Pro Ala | Asp Arg Phe Lys Thr |
| 165                     | 170                 | 175                 |
| Lys Arg Ile Ala Gly Lys | Ile Ile Pro Ala Ile | Ala Thr Thr Thr Ala |
| 180                     | 185                 | 190                 |
| Thr Val Ser Gly Leu Val | Ala Leu Glu Met Ile | Lys Val Thr Gly Gly |
| 195                     | 200                 | 205                 |
| Tyr Pro Phe Glu Ala Tyr | Lys Asn Cys Phe Leu | Asn Leu Ala Ile Pro |
| 210                     | 215                 | 220                 |
| Ile Val Val Phe Thr Glu | Thr Thr Glu Val Arg | Lys Thr Lys Ile Arg |
| 225                     | 230                 | 235                 |
| Asn Gly Ile Ser Phe Thr | Ile Trp Asp Arg Trp | Thr Val His Gly Lys |
| 245                     | 250                 | 255                 |
| Glu Asp Phe Thr Leu Leu | Asp Phe Ile Asn Ala | Val Lys Glu Lys Tyr |
| 260                     | 265                 | 270                 |
| Gly Ile Glu Pro Thr Met | Val Val Gln Gly Val | Lys Met Leu Tyr Val |
| 275                     | 280                 | 285                 |
| Pro Val Met Pro Gly His | Ala Lys Arg Leu Lys | Leu Thr Met His Lys |
| 290                     | 295                 | 300                 |
| Leu Val Lys Pro Thr Thr | Glu Lys Lys Tyr Val | Asp Leu Thr Val Ser |
| 305                     | 310                 | 315                 |
| Phe Ala Pro Asp Ile Asp | Gly Asp Glu Asp Leu | Pro Gly Pro Pro Val |
| 325                     | 330                 | 335                 |
| Arg Tyr Tyr Phe Ser His | Asp Thr Asp         |                     |
| 340                     | 345                 |                     |

&lt;210&gt; 4333

&lt;211&gt; 1278

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4333

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120

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180

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240

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300

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&lt;210&gt; 4334

&lt;211&gt; 189

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4334

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Pro | Gln | Arg | Arg | Leu | Leu | Ser | Ala | Arg | Val | Asn | Arg | Ser | Gln | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Phe | Ala | Gly | Val | Leu | Gly | Ser | His | Glu | Arg | Gly | Pro | Arg | Ser | Phe | Pro |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Val | Phe | Ser | Pro | Pro | Gly | Pro | Pro | Arg | Lys | Pro | Pro | Ala | Leu | Ser | Arg |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Ser | Arg | Met | Phe | Ser | Val | Ala | His | Pro | Ala | Ala | Lys | Val | Pro | Gln |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Glu | Arg | Leu | Asp | Leu | Val | Tyr | Thr | Ala | Leu | Lys | Arg | Gly | Leu | Thr |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ala | Tyr | Leu | Glu | Val | His | Gln | Gln | Glu | Gln | Glu | Lys | Leu | Gln | Gly | Gln |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Ile | Arg | Glu | Ser | Lys | Arg | Asn | Ser | Arg | Leu | Gly | Phe | Leu | Tyr | Asp | Leu |

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840
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1080

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 1211

<210> 4336

<211> 325

<212> PRT

<213> Homo sapiens

<400> 4336

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Glu | Arg | Lys | Gly | Gln | Asp | Leu | Ala | Gly | Asp | Gly | Glu | Glu | Trp | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Pro | Leu | Lys | Thr | Phe | Val | Pro | Ser | Val | Ser | Pro | Phe | Gln | Leu | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Gly | Ala | Ala | Leu | Val | Asn | Val | Gln | Ile | Pro | Leu | Leu | Leu | Gly | Gln |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |
| Leu | Val | Glu | Val | Val | Ala | Lys | Tyr | Thr | Arg | Asp | His | Val | Gly | Ser | Phe |
|     |     |     | 50  |     |     |     |     | 55  |     |     | 60  |     |     |     |     |
| Met | Thr | Glu | Ser | Gln | Asn | Leu | Ser | Thr | His | Leu | Ile | Leu | Tyr | Gly |     |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Val | Gln | Gly | Leu | Leu | Thr | Phe | Gly | Tyr | Leu | Val | Leu | Leu | Ser | His | Val |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gly | Glu | Arg | Met | Ala | Val | Asp | Met | Arg | Arg | Ala | Leu | Phe | Ser | Ser | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |
| Leu | Arg | Gln | Asp | Ile | Thr | Phe | Phe | Asp | Ala | Asn | Lys | Thr | Gly | Gln | Leu |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |
| Val | Ser | Arg | Leu | Thr | Thr | Asp | Val | Gln | Glu | Phe | Lys | Ser | Ser | Phe | Lys |
|     |     |     | 130 |     |     |     |     | 135 |     |     |     | 140 |     |     |     |
| Leu | Val | Ile | Ser | Gln | Gly | Leu | Arg | Ser | Cys | Thr | Gln | Val | Ala | Gly | Cys |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Leu | Val | Ser | Leu | Ser | Met | Leu | Ser | Thr | Arg | Leu | Thr | Leu | Leu | Leu | Met |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |
| Val | Ala | Thr | Pro | Ala | Leu | Met | Gly | Val | Gly | Thr | Leu | Met | Gly | Ser | Gly |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |
| Leu | Arg | Lys | Leu | Ser | Arg | Gln | Cys | Gln | Glu | Gln | Ile | Ala | Arg | Ala | Met |
|     |     |     | 195 |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Gly | Val | Ala | Asp | Glu | Ala | Leu | Gly | Asn | Val | Arg | Thr | Val | Arg | Ala | Phe |
|     |     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |
| Ala | Met | Glu | Gln | Arg | Glu | Glu | Glu | Arg | Tyr | Gly | Ala | Glu | Leu | Glu | Ala |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Cys | Arg | Cys | Arg | Ala | Glu | Glu | Leu | Gly | Arg | Gly | Ile | Ala | Leu | Phe | Gln |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Gly | Leu | Ser | Asn | Ile | Ala | Phe | Asn | Cys | Met | Val | Leu | Gly | Thr | Leu | Phe |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ile | Gly | Gly | Ser | Leu | Val | Ala | Gly | Gln | Gln | Leu | Thr | Gly | Gly | Asp | Leu |
|     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |
| Met | Ser | Phe | Leu | Val | Ala | Ser | Gln | Thr | Val | Gln | Ser | Phe | Leu | Arg | Val |
|     |     |     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |
| Ala | Pro | Cys | Pro | Asn | Ser | Leu | Pro | Leu | Gln | Ala | Val | Thr | Leu | His | Ala |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Trp | Lys | Asp | His | Pro |     |     |     |     |     |     |     |     |     |     |     |

325

&lt;210&gt; 4337

&lt;211&gt; 461

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4337

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240  
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461

&lt;210&gt; 4338

&lt;211&gt; 118

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4338

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asn | Leu | Thr | Phe | Ser | Gln | Pro | Gly | Ser | Val | Cys | Ala | Thr | Trp | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Ser | Ser | Ala | Pro | Gly | Asp | Pro | Ser | Leu | Gly | Val | Gly | Arg | Thr | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Trp | Phe | Pro | Ser | Ser | Gly | Ala | His | Gly | Gly | Glu | Val | Glu | Gly | Gly |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Arg | Arg | Glu | Gly | Ala | Thr | Cys | Cys | Ser | Val | Glu | Lys | Gln | Gln | Ser | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Leu | Gln | Pro | Ala | Gln | Leu | Ala | Phe | Leu | Thr | Leu | Ser | Leu | Pro | Gly | Leu |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     | 80  |     |
| Cys | Gly | Arg | Glu | Gly | Gln | Ala | Arg | Trp | Pro | Ala | Arg | Asp | Val | Val | Phe |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Ser | Phe | Val | Leu | Cys | Thr | Met | Pro | Gln | Lys | Asn | Ile | Leu | Leu | Ile | Cys |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn | Gln | Asp | Asn | Ile | Ile |     |     |     |     |     |     |     |     |     |     |
|     |     |     | 115 |     |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4339

&lt;211&gt; 5269

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4339



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<210> 4340

<211> 1088

<212> PRT

<213> Homo sapiens

<400> 4340

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Thr | Asn | Phe | Thr | Val | Val | Pro | Val | Glu | Ala | His | Ala | Asp | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Gly | Asp | Glu | Thr | Ala | Glu | Arg | Thr | Glu | Ala | Pro | Gly | Thr | Pro | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Pro | Glu | Pro | Glu | Arg | Pro | Ser | Pro | Gly | Asp | Gly | Asn | Pro | Arg | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asn | Ser | Pro | Phe | Leu | Asn | Asn | Val | Glu | Val | Glu | Gln | Glu | Ser | Phe | Phe |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Gly | Lys | Asn | Met | Ala | Leu | Phe | Glu | Glu | Glu | Met | Asp | Ser | Asn | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Met | Val | Ser | Ser | Leu | Leu | Asn | Lys | Leu | Ala | Asn | Tyr | Thr | Asn | Leu | Ser |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gln | Gly | Val | Val | Glu | His | Glu | Glu | Asp | Glu | Glu | Ser | Arg | Arg | Arg | Glu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ala | Lys | Ala | Pro | Arg | Met | Gly | Thr | Phe | Ile | Gly | Val | Tyr | Leu | Pro | Cys |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Leu | Gln | Asn | Ile | Leu | Gly | Val | Ile | Leu | Phe | Leu | Arg | Leu | Thr | Trp | Ile |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Val | Gly | Val | Ala | Gly | Val | Leu | Glu | Ser | Phe | Leu | Ile | Val | Ala | Met | Cys |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Cys | Thr | Cys | Thr | Met | Leu | Thr | Ala | Ile | Ser | Met | Ser | Ala | Ile | Ala | Thr |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asn | Gly | Val | Val | Pro | Ala | Gly | Gly | Ser | Tyr | Tyr | Met | Ile | Ser | Arg | Ser |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Leu | Gly | Pro | Glu | Phe | Gly | Gly | Ala | Val | Gly | Leu | Cys | Phe | Tyr | Leu | Gly |
|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Thr | Thr | Phe | Ala | Gly | Ala | Met | Tyr | Ile | Leu | Gly | Thr | Ile | Glu | Ile | Phe |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Leu | Thr | Tyr | Ile | Ser | Pro | Gly | Ala | Ala | Ile | Phe | Gln | Ala | Glu | Ala | Ala |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Gly | Gly | Glu | Ala | Ala | Ala | Met | Leu | His | Asn | Met | Arg | Val | Tyr | Gly | Thr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Cys | Thr | Leu | Val | Leu | Met | Ala | Leu | Val | Val | Phe | Val | Gly | Val | Lys | Tyr |

3535

|   |   |                 |
|---|---|-----------------|
| 690   | 695   | 700             |
| Ala Val Lys His Pro Arg   | Leu Leu Ser Phe Thr Ser                     | Gln Leu Lys Ala |
| 705   | 710   | 715             |
| Gly Lys Gly Leu Thr   | Ile Val Gly Ser Val Leu Glu Gly Thr Tyr Leu | 720             |
| 725   | 730   | 735             |
| Asp Lys His Met Glu Ala Gln Arg Ala Glu Glu Asn Ile Arg Ser Leu |   |                 |
| 740   | 745   | 750             |
| Met Ser Thr Glu Lys Thr Lys Gly Phe Cys Gln Leu Val Val Ser Ser |   |                 |
| 755   | 760   | 765             |
| Ser Leu Arg Asp Gly Met Ser His Leu Ile Gln Ser Ala Gly Leu Gly |   |                 |
| 770   | 775   | 780             |
| Gly Leu Lys His Asn Thr Val Leu Met Ala Trp Pro Ala Ser Trp Lys |   |                 |
| 785   | 790   | 795             |
| Gln Glu Asp Asn Pro Phe Ser Trp Lys Asn Phe Val Asp Thr Val Arg |   |                 |
| 805   | 810   | 815             |
| Asp Thr Thr Ala Ala His Gln Ala Leu Leu Val Ala Lys Asn Val Asp |   |                 |
| 820   | 825   | 830             |
| Ser Phe Pro Gln Asn Gln Glu Arg Phe Gly Gly Gly His Ile Asp Val |   |                 |
| 835   | 840   | 845             |
| Trp Trp Ile Val His Asp Gly Gly Met Leu Met Leu Leu Pro Phe Leu |   |                 |
| 850   | 855   | 860             |
| Leu Arg Gln His Lys Val Trp Arg Lys Cys Arg Met Arg Ile Phe Thr |   |                 |
| 865   | 870   | 875             |
| Val Ala Gln Val Asp Asp Asn Ser Ile Gln Met Lys Lys Asp Leu Gln |   |                 |
| 885   | 890   | 895             |
| Met Phe Leu Tyr His Leu Arg Ile Ser Ala Glu Val Glu Val Val Glu |   |                 |
| 900   | 905   | 910             |
| Met Val Glu Asn Asp Ile Ser Ala Phe Thr Tyr Glu Arg Thr Leu Met |   |                 |
| 915   | 920   | 925             |
| Met Glu Gln Arg Ser Gln Met Leu Lys Gln Met Gln Leu Ser Lys Asn |   |                 |
| 930   | 935   | 940             |
| Glu Gln Glu Arg Glu Ala Gln Leu Ile His Asp Arg Asn Thr Ala Ser |   |                 |
| 945   | 950   | 955             |
| His Thr Ala Ala Ala Ala Arg Thr Gln Ala Pro Pro Thr Pro Asp Lys |   |                 |
| 965   | 970   | 975             |
| Val Gln Met Thr Trp Thr Arg Glu Lys Leu Ile Ala Glu Lys Tyr Arg |   |                 |
| 980   | 985   | 990             |
| Ser Arg Asp Thr Ser Leu Ser Gly Phe Lys Asp Leu Phe Ser Met Lys |   |                 |
| 995   | 1000  | 1005            |
| Pro Glu Trp Gly Asn Leu Asp Gln Ser Asn Val Arg Arg Met His Thr |   |                 |
| 1010  | 1015  | 1020            |
| Ala Val Lys Leu Asn Gly Val Val Leu Asn Lys Ser Gln Asp Ala Gln |   |                 |
| 1025  | 1030  | 1035            |
| Leu Val Leu Leu Asn Met Pro Gly Pro Pro Lys Asn Arg Gln Gly Asp |   |                 |
| 1045  | 1050  | 1055            |
| Glu Asn Tyr Met Glu Phe Leu Glu Val Leu Thr Glu Gly Leu Asn Arg |   |                 |
| 1060  | 1065  | 1070            |
| Val Leu Leu Val Arg Gly Gly Gly Arg Glu Val Ile Thr Ile Tyr Ser |   |                 |
| 1075  | 1080  | 1085            |

&lt;210&gt; 4341

&lt;211&gt; 693

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

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 <212> PRT  
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 Lys Glu Gly Leu Val Ser Val Gly Ile Thr Gln Lys Arg Ala Leu Tyr  
 35 40 45  
 Met Phe Ser Tyr Lys Tyr Ser Val Met Glu Lys His Ser Leu Asp Ala  
 50 55 60  
 Tyr Gly Ser Leu Arg Ser Phe Phe Phe His Pro Leu Phe Leu Glu Lys  
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 <212> DNA  
 <213> Homo sapiens

<400> 4343

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&lt;210&gt; 4344

&lt;211&gt; 118

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4344

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Pro | Ser | Arg | Pro | Arg | Leu | Pro | Pro | Ser | Pro | Pro | Gln | Arg | Leu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Arg | Val | Val | Arg | Gly | Arg | Gly | Pro | Phe | Ala | Phe | Arg | Thr | Gly | Arg | Pro |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Thr | Leu | Gly | Ala | Trp | Thr | Glu | Ser | Ser | Gly | Gly | Arg | Ala | Ala | Gly | Pro |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Gly | Gly | Glu | Arg | Arg | Thr | Asp | Phe | Arg | Gly | Gly | Pro | Gly | His | Ala | Ala |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Glu | Thr | Thr | Arg | Leu | Pro | Gly | Gly | Gly | Gln | Asp | Arg | Pro | Cys | Pro | Asp |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |
| Lys | Met | Glu | Phe | Pro | Val | Trp | Leu | Gln | Leu | Ala | Ala | Arg | Ser | Gln | Ser |
|     |     |     | 85  |     |     |     | 90  |     |     |     |     |     |     | 95  |     |
| Ser | Ser | Val | Ile | Arg | Leu | Ser | Asp | Cys | Ser | Pro | Phe | Ile | Ser | Phe | Ala |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Val | Val | Gln | Ile | Leu | Ile |     |     |     |     |     |     |     |     |     |     |
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&lt;210&gt; 4345

&lt;211&gt; 349

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4345

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 180



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 ggagtacgtg cgggtgttcg atgtgacgga ggcactgcc ctccacagac accagacagg  
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 <211> 116  
 <212> PRT  
 <213> Homo sapiens

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 Thr Leu Thr His Met Ser Ile Thr Arg Leu His Glu Gln Lys Leu Val  
 35 40 45  
 Gln His Val Val Ser Gln Asn Cys Asp Gly Leu His Leu Arg Ser Gly  
 50 55 60  
 Leu Xaa Arg Thr Ala Ile Ser Glu Leu His Gly Asn Met Tyr Ile Glu  
 65 70 75 80  
 Gly Val Arg Ala Gly Val Arg Cys Asp Gly Ala His Cys Pro Pro Gln  
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 Thr Pro Asp Arg Pro Asp Leu Pro Gln Val Trp Asp Pro Ala Ala Gly  
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 His His Cys Ala  
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<210> 4347  
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 <212> DNA  
 <213> Homo sapiens

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<210> 4348  
 <211> 72  
 <212> PRT  
 <213> Homo sapiens

&lt;400&gt; 4348

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Arg Gln Cys Arg Gly Arg Ser Arg Arg Arg Val Ala Arg Ser Ser Leu
      35           40           45
Pro Ser Pro Ser Ala Arg Pro Gly Arg Gly Gly Arg Pro Gly Pro Gly
      50           55           60
Gly Ser Ala Gly Cys Pro Gly Leu
65           70

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&lt;210&gt; 4349

&lt;211&gt; 2040

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4349

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1080

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<400> 4350

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| Xaa | Phe | Phe | Phe | Leu | Arg | Tyr | Lys | Asn | Leu | Tyr | Leu | Tyr | Tyr | Asn | Asp |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Ile | Arg | Thr | Gln | His | Gly | Pro | His | Gly | Gly | Gln | Val | Ala | Gly | Gly | Pro |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Phe | Pro | Pro | Leu | Ala | His | Ala | Pro | Leu | Thr | Gly | Thr | Arg | Pro | Ser | Cys |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Gly | Pro | Arg | Leu | Trp | His | Gly | Thr | Cys | Pro | Ser | Ala | Gln | His | Gly | Pro |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Gly | Ala | Thr | Leu | Leu | Ala | Glu | Gly | Gln | Gly | Pro | Leu | Cys | Arg | Gln | Trp |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Gly | Gly | Gly | Pro | Arg | Phe | Pro | Asp | Arg | Gly | Arg | Gln | Gly | Thr | Gly | Glu |
|     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |
| Pro | Ala | Ser | Pro | Ser | Gly | Gln | His | Gly | Pro | Gly | Gln | Thr | Glu | Gln | Gly |
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| Met | Ser | Ala | Thr | Val | Val | Asp | Ala | Val | Asn | Ala | Ala | Pro | Leu | Ser | Gly | 1   | 5   | 10  | 15  |
| Ser | Lys | Glu | Met | Ser | Leu | Glu | Glu | Pro | Lys | Lys | Met | Thr | Arg | Glu | Asp | 20  | 25  | 30  |     |
| Trp | Arg | Lys | Lys | Lys | Glu | Leu | Glu | Glu | Gln | Arg | Lys | Leu | Gly | Asn | Ala | 35  | 40  | 45  |     |
| Pro | Ala | Glu | Val | Asp | Glu | Glu | Gly | Lys | Asp | Ile | Asn | Pro | His | Ile | Pro | 50  | 55  | 60  |     |
| Gln | Tyr | Ile | Ser | Ser | Val | Pro | Trp | Tyr | Ile | Asp | Pro | Ser | Lys | Arg | Pro | 65  | 70  | 75  | 80  |
| Thr | Leu | Lys | His | Gln | Arg | Pro | Gln | Pro | Glu | Lys | Gln | Lys | Gln | Phe | Ser | 85  | 90  | 95  |     |
| Ser | Ser | Gly | Glu | Trp | Tyr | Lys | Arg | Gly | Val | Lys | Glu | Asn | Ser | Ile | Ile | 100 | 105 | 110 |     |
| Thr | Lys | Tyr | Arg | Lys | Gly | Ala | Cys | Glu | Asn | Cys | Gly | Ala | Met | Thr | His | 115 | 120 | 125 |     |
| Lys | Lys | Lys | Asp | Cys | Phe | Glu | Arg | Pro | Arg | Arg | Val | Gly | Ala | Lys | Phe | 130 | 135 | 140 |     |
| Thr | Gly | Thr | Asn | Ile | Ala | Pro | Asp | Glu | His | Val | Gln | Pro | Gln | Leu | Met | 145 | 150 | 155 | 160 |
| Phe | Asp | Tyr | Asp | Gly | Lys | Arg | Asp | Arg | Trp | Asn | Gly | Tyr | Asn | Pro | Glu | 165 | 170 | 175 |     |
| Glu | His | Met | Lys | Ile | Val | Glu | Glu | Tyr | Ala | Lys | Val | Asp | Leu | Ala | Lys | 180 | 185 | 190 |     |
| Arg | Thr | Leu | Lys | Ala | Gln | Lys | Leu | Gln | Glu | Glu | Leu | Ala | Ser | Gly | Lys | 195 | 200 | 205 |     |
| Leu | Val | Glu | Gln | Ala | Asn | Ser | Pro | Lys | His | Gln | Trp | Gly | Glu | Glu | Glu | 210 | 215 | 220 |     |
| Pro | Asn | Ser | Gln | Thr | Glu | Lys | Asp | His | Asn | Ser | Glu | Asp | Glu | Asp | Glu | 225 | 230 | 235 | 240 |
| Asp | Lys | Tyr | Ala | Asp | Asp | Ile | Asp | Met | Pro | Gly | Gln | Asn | Phe | Asp | Ser | 245 | 250 | 255 |     |
| Lys | Arg | Arg | Ile | Thr | Val | Arg | Asn | Leu | Arg | Ile | Arg | Glu | Asp | Ile | Ala | 260 | 265 | 270 |     |
| Lys | Tyr | Leu | Arg | Asn | Leu | Asp | Pro | Asn | Ser | Ala | Tyr | Tyr | Asp | Pro | Lys | 275 | 280 | 285 |     |
| Thr | Arg | Ala | Met | Arg | Glu | Asn | Pro | Tyr | Ala | Asn | Ala | Gly | Lys | Asn | Pro | 290 | 295 | 300 |     |
| Asp | Glu | Val | Ser | Tyr | Ala | Gly | Asp | Asn | Phe | Val | Arg | Tyr | Thr | Gly | Asp | 305 | 310 | 315 | 320 |
| Thr | Ile | Ser | Met | Ala | Gln | Thr | Gln | Leu | Phe | Ala | Trp | Glu | Ala | Tyr | Asp |     |     |     |     |

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&lt;211&gt; 1741

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&lt;400&gt; 4355

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&lt;210&gt; 4356

&lt;211&gt; 509

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4356

Met Ala Ala Ile Gly Val His Leu Gly Cys Thr Ser Ala Cys Val Ala

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Gly Leu Ala Ala Lys Gln Ser Arg Ile Arg Asn Ile Ser Asn Thr Val
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65           70           75           80
Gln Lys Tyr Ile Ala Glu Ser Lys Cys Leu Val Ile Glu Lys Asn Gly
85           90           95
Lys Leu Arg Tyr Glu Ile Asp Thr Gly Glu Glu Thr Lys Phe Val Asn
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Pro Glu Asp Val Ala Arg Leu Ile Phe Ser Lys Met Lys Glu Thr Ala
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Ala Ala Gly Phe Asn Val Leu Arg Leu Ile His Glu Pro Ser Ala Ala
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115

&lt;210&gt; 4359

&lt;211&gt; 3661

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4359

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 <212> PRT  
 <213> Homo sapiens

<400> 4360  
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 35 40 45  
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 50 55 60  
 Thr Leu Ala Tyr Ser Pro Arg Asp Glu Glu Asp Ser Met Pro Pro Ile  
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 Ser Thr Pro Arg Arg Ser Asp Ser Ala Ile Ser Val Arg Ser Leu His  
 85 90 95  
 Ser Glu Ser Ser Met Ser Leu Arg Ser Thr Phe Ser Leu Pro Glu Glu  
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 Glu Glu Glu Pro Glu Pro Leu Val Phe Ala Glu Gln Pro Ser Val Lys  
 115 120 125  
 Leu Cys Cys Gln Leu Cys Cys Ser Val Phe Lys Asp Pro Val Ile Thr  
 130 135 140  
 Thr Cys Gly His Thr Phe Cys Arg Arg Cys Ala Leu Lys Ser Glu Lys  
 145 150 155 160  
 Cys Pro Val Asp Asn Val Lys Leu Thr Val Val Val Asn Asn Ile Ala  
 165 170 175  
 Val Ala Glu Gln Ile Gly Glu Leu Phe Ile His Cys Arg His Gly Cys



3555

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| 625   | 630 | 635 |
| Arg His Gln Gly Ser Val Thr Ala Leu Ala Val Ser Arg Gly Arg Leu |     | 640 |
|   | 645 | 650 |
| Phe Ser Gly Ala Val Asp Ser Thr Val Lys Val Trp Thr Cys         |     | 655 |
| 660   | 665 | 670 |

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 <211> 574  
 <212> DNA  
 <213> Homo sapiens

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<210> 4362  
 <211> 116  
 <212> PRT  
 <213> Homo sapiens

<400> 4362  
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 Asp Met Gln Gln His Glu Cys Ala Met Ser Trp Arg Ala His Tyr Gly  
 35 40 45  
 Glu Val Tyr Ser Val Glu Phe Ser Tyr Asp Glu Asn Thr Val Tyr Ser  
 50 55 60  
 Ile Gly Glu Asp Gly Lys Val Gly Gly Ser Arg Ile Gln Ile Arg Glu  
 65 70 75 80  
 His Arg Asp Asp Met Trp Ala Gly Cys Arg Leu Trp Pro Tyr Leu Leu  
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 Leu Ala Leu Gln Pro Gly Ala Ser Phe Cys Ser Phe Val Ile Cys Arg

Ile Gly Ile Asn  
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<210> 4363  
<211> 1222  
<212> DNA  
<213> Homo sapiens

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<211> 75  
 <212> PRT  
 <213> Homo sapiens

<400> 4364  
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 Asn His Ser Ser Thr Arg Ala Gln Arg Pro Gly Pro Gly Gly Arg Ser  
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<210> 4365  
 <211> 469  
 <212> DNA  
 <213> Homo sapiens

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 <211> 156  
 <212> PRT  
 <213> Homo sapiens

<400> 4366  
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 35 40 45  
 Val Ala Ile Gly Gly Thr Ser Phe Pro Thr Tyr Tyr Arg Ser Met Tyr  
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 Pro Lys Glu Val Ile Met Thr Gly Asp Met Met Leu Glu Lys Val Tyr

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65          70          75          80
Arg Glu Gly Asp Lys Leu Val Ala Val Leu Glu Asn Glu Tyr Thr Gly
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          100          105          110
Arg Pro Asp Glu Glu Ile Tyr Tyr Gly Leu Lys Glu Gly Ser Arg Asn
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Lys Gly Gln Ile Asp Val Glu Ala Leu Phe Ala Ile Lys Pro Gln Pro
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Ser Leu Asn Thr Leu Asn Glu Glu Ala Ala Gly Asp
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<210> 4367  
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<210> 4368  
 <211> 102  
 <212> PRT  
 <213> Homo sapiens

&lt;400&gt; 4368

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 Phe Glu Glu Thr Leu Asn Ile Leu Ile Tyr Glu Thr Pro Arg Gly Pro  
 35 40 45  
 Asp Pro Ala Leu Leu Glu Ala Thr Gly Gly Ala Ala Gly Ala Gly Gly  
 50 55 60  
 Ala Gly Arg Gly Glu Asp Glu Glu Asn Arg Glu His Arg Val Arg Arg  
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 Ile His Val Arg Arg His Ile Thr His Asp Glu Arg Pro His Gly Gln  
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 Gln Ile Val Phe Lys Asp  
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&lt;210&gt; 4369

&lt;211&gt; 1264

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4369

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 780  
 gggaagatga tcaccgattc tggcaagttc tccggcagtt ctccggcgcc cccaagccag  
 840  
 ccgcaggggtc tgagctatgc ggaggacgag gctgagcacg agaacatgaa ggctgtgctg  
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 1140  
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 1264

<210> 4370  
 <211> 322  
 <212> PRT  
 <213> Homo sapiens

<400> 4370  
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 Trp Ala Phe Lys Met Asp Tyr Glu Thr Thr Glu Lys Glu Val Ala Glu  
 35 40 45  
 Pro Leu Leu Asp Leu Lys Glu Gly Ile Asp Gln Leu Glu Asn Asn Lys  
 50 55 60  
 Thr Leu Gly Phe Ile Leu Ser Thr Leu Leu Ala Ile Gly Asn Phe Leu  
 65 70 75 80  
 Asn Gly Thr Asn Ala Lys Ala Phe Glu Leu Ser Tyr Leu Glu Lys Val  
 85 90 95  
 Pro Glu Val Lys Asp Thr Val His Lys Gln Ser Leu Leu His His Val  
 100 105 110  
 Cys Thr Met Val Val Glu Asn Phe Pro Asp Ser Ser Asp Leu Tyr Ser  
 115 120 125  
 Glu Ile Gly Ala Ile Thr Arg Ser Ala Lys Val Asp Phe Asp Gln Leu  
 130 135 140  
 Gln Asp Asn Leu Cys Gln Met Glu Arg Arg Cys Lys Ala Ser Trp Asp  
 145 150 155 160  
 His Leu Lys Ala Ile Ala Lys His Glu Met Lys Pro Val Leu Lys Gln  
 165 170 175  
 Arg Met Ser Glu Phe Leu Lys Asp Cys Ala Glu Arg Ile Ile Ile Leu  
 180 185 190  
 Lys Ile Val His Arg Arg Ile Ile Asn Arg Phe His Ser Phe Leu Leu  
 195 200 205  
 Phe Met Gly His Pro Pro Tyr Ala Ile Arg Glu Val Asn Ile Asn Lys  
 210 215 220  
 Phe Cys Arg Ile Ile Ser Glu Phe Ala Leu Glu Tyr Arg Thr Thr Arg  
 225 230 235 240  
 Glu Arg Val Leu Gln Lys Gln Lys Arg Ala Asn His Arg Glu Arg  
 245 250 255  
 Asn Lys Thr Arg Gly Lys Met Ile Thr Asp Ser Gly Lys Phe Ser Gly  
 260 265 270  
 Ser Ser Pro Ala Pro Pro Ser Gln Pro Gln Gly Leu Ser Tyr Ala Glu

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 275 |     | 280 |     | 285 |     |     |     |     |     |     |     |     |     |     |
| Asp | Ala | Ala | Glu | His | Glu | Asn | Met | Lys | Ala | Val | Leu | Lys | Thr | Ser | Ser |
|     | 290 |     | 295 |     | 300 |     |     |     |     |     |     |     |     |     |     |
| Pro | Ser | Arg | Ser | Pro | Leu | His | Ile | Pro | Ser | Pro | Ser | Cys | Gln | Leu | Cys |
| 305 |     |     |     | 310 |     |     |     | 315 |     |     |     |     |     | 320 |     |
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<210> 4371  
 <211> 907  
 <212> DNA  
 <213> Homo sapiens

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 240  
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 aatacctaca tcgaagcctg cctggacttc atcaaagacc atctcgtcaa cacagagacc  
 360  
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 420  
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 660  
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 720  
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 780  
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 907

<210> 4372  
 <211> 302  
 <212> PRT  
 <213> Homo sapiens

<400> 4372  
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Asn Leu Glu Asn Ala Lys Arg Phe Ala Ile Asp Ile Gly Gly Ser Leu
35           40           45
Thr Lys Leu Ala Tyr Tyr Ser Thr Val Gln His Lys Val Ala Lys Val
50           55           60
Arg Ser Phe Asp His Ser Gly Lys Asp Thr Glu Arg Glu His Glu Pro
65           70           75           80
Pro Tyr Glu Ile Ser Val Gln Glu Glu Ile Thr Ala Arg Leu His Phe
85           90           95
Ile Lys Phe Glu Asn Thr Tyr Ile Glu Ala Cys Leu Asp Phe Ile Lys
100          105          110
Asp His Leu Val Asn Thr Glu Thr Lys Val Ile Gln Ala Thr Gly Gly
115          120          125
Gly Ala Tyr Lys Phe Lys Asp Leu Ile Glu Glu Lys Leu Arg Leu Lys
130          135          140
Val Asp Lys Glu Asp Val Met Thr Cys Leu Ile Lys Gly Cys Asn Phe
145          150          155          160
Val Leu Lys Asn Ile Pro His Glu Ala Phe Val Tyr Gln Lys Asp Ser
165          170          175
Asp Pro Glu Phe Arg Phe Gln Thr Asn His Pro His Ile Phe Pro Tyr
180          185          190
Leu Leu Val Asn Ile Gly Ser Gly Val Ser Ile Val Lys Val Glu Thr
195          200          205
Glu Asp Arg Phe Glu Trp Val Gly Gly Ser Ser Ile Gly Gly Gly Thr
210          215          220
Phe Trp Gly Leu Gly Ala Leu Leu Thr Lys Thr Lys Lys Phe Asp Glu
225          230          235          240
Leu Leu His Leu Ala Ser Arg Gly Gln His Ser Asn Val Asp Met Leu
245          250          255
Val Arg Asp Val Tyr Gly Gly Ala His Gln Thr Leu Gly Leu Ser Gly
260          265          270
Asn Leu Ile Ala Ser Ser Phe Gly Lys Ser Ala Thr Ala Asp Gln Glu
275          280          285
Phe Ser Lys Glu Asp Met Ala Lys Ser Leu Leu His Met Ile
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&lt;210&gt; 4373

&lt;211&gt; 1017

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4373

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120
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gaaaaagggg gggcgcaaaa atggctgggg caattataga aaacatgagc accaagaagc
240
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300

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 420  
 tccgagacat tgaagaggca attccaaggg aaattgaagc caatgacatc gtgttttctg  
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&lt;210&gt; 4374

&lt;211&gt; 272

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4374

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Gly | Ala | Ile | Ile | Glu | Asn | Met | Ser | Thr | Lys | Lys | Leu | Cys | Ile |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Gly | Gly | Ile | Leu | Leu | Val | Phe | Gln | Ile | Ile | Ala | Phe | Leu | Val | Gly |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Leu | Ile | Ala | Pro | Gly | Pro | Thr | Thr | Ala | Val | Ser | Tyr | Met | Ser | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Lys | Cys | Val | Asp | Ala | Arg | Lys | Asn | His | His | Lys | Thr | Lys | Trp | Phe | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Trp | Gly | Pro | Asn | His | Cys | Asp | Lys | Ile | Arg | Asp | Ile | Glu | Glu | Ala |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Ile | Pro | Arg | Glu | Ile | Glu | Ala | Asn | Asp | Ile | Val | Phe | Ser | Val | His | Ile |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Pro | Leu | Pro | His | Met | Glu | Met | Ser | Pro | Trp | Phe | Gln | Phe | Met | Leu | Phe |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ile | Leu | Gln | Leu | Asp | Ile | Ala | Phe | Lys | Leu | Asn | Asn | Gln | Ile | Arg | Glu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Asn | Ala | Glu | Val | Ser | Met | Asp | Val | Ser | Leu | Ala | Tyr | Arg | Asp | Asp | Ala |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Ala | Glu | Trp | Thr | Glu | Met | Ala | His | Glu | Arg | Val | Pro | Arg | Lys | Leu |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Lys | Cys | Thr | Phe | Thr | Ser | Pro | Lys | Thr | Pro | Glu | His | Glu | Gly | Arg | Tyr |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Tyr | Glu | Cys | Asp | Val | Leu | Pro | Phe | Met | Glu | Ile | Gly | Ser | Val | Ala | His |

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<210> 4375
<211> 1966
<212> DNA
<213> Homo sapiens
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| ttcctctcca  | ccttatccag | gtactcatca  | tcctctgtgc | cccactccag | ctccaccttc |
| 120         |            |             |            |            |            |
| cgcttgacgg  | ccagcttttg | gagggccggc  | cccgggatgc | tacacacaac | ccagctgtac |
| 180         |            |             |            |            |            |
| cagcatgtgc  | cagagacacg | ctggccaatc  | gtgtactcgc | cgcgctacaa | catcaccttc |
| 240         |            |             |            |            |            |
| atgggcctgg  | agaagctgca | tccctttgat  | gccggaaaat | ggggcaaagt | gatcaatttc |
| 300         |            |             |            |            |            |
| ctaaaagaag  | agaagcttct | gtctgacagc  | atgctggtgg | aggcgcggga | ggcctcggag |
| 360         |            |             |            |            |            |
| gaggacctgc  | tggtggtgca | cacgaggcgc  | tatcttaatg | agctcaagtg | gtcctttgct |
| 420         |            |             |            |            |            |
| gttgctacca  | tcacagaaat | cccccccgtt  | atcttctctc | ccaacttcct | tgtgcagagg |
| 480         |            |             |            |            |            |
| aagggtgctga | ggccccttcg | gaccagaca   | ggaggaacca | taatggcggg | gaagctggct |
| 540         |            |             |            |            |            |
| gtggagcgag  | gctgggccat | caacgtgggg  | ggtggcttcc | accactgctc | cagcgaccgt |
| 600         |            |             |            |            |            |
| ggcgggggct  | tctgtgccta | tgcgacatc   | acgctcgcca | tcaagtcttc | gtttgagcgt |
| 660         |            |             |            |            |            |
| gtggagggca  | tctccagggc | taccatcatt  | gatcttgatg | cccatcaggg | caatgggcat |
| 720         |            |             |            |            |            |
| gagcgagact  | tcatggacga | caagtgtgtg  | acatgcatgg | atgtctacaa | ccgccacatc |
| 780         |            |             |            |            |            |
| taccagggg   | accgctttgc | caagcaggcc  | atcaggcgga | aggtggagct | ggagtggggc |
| 840         |            |             |            |            |            |
| acagaggatg  | atgagtacct | ggataagggtg | gagaggaaca | tcaagaaatc | cctccaggag |
| 900         |            |             |            |            |            |
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| 960         |            |             |            |            |            |
| ggggggctgt  | ccatcagccc | agcgggcac   | gtgaagcggg | atgagctggt | gttccggatg |
| 1020        |            |             |            |            |            |
| gtccgtggcc  | gccgggtgcc | catccttatg  | gtgacctcag | gcgggtacca | gaagcgcaca |
| 1080        |            |             |            |            |            |

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 1920  
 gtcttgccctg ttcagtgcaa ggggcaggtt ttggggggag gaattc  
 1966

&lt;210&gt; 4376

&lt;211&gt; 399

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4376

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Val | Pro | Ala | Leu | Tyr | Thr | Thr | Thr | Ser | Gly | Arg | Cys | Ser | Trp | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Asp | Phe | Leu | Met | Phe | Leu | Ser | Thr | Leu | Ser | Arg | Tyr | Ser | Ser | Ser | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Val | Pro | His | Ser | Ser | Ser | Thr | Phe | Arg | Leu | Thr | Ala | Ser | Phe | Gly | Arg |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ala | Gly | Pro | Gly | Met | Leu | His | Thr | Thr | Gln | Leu | Tyr | Gln | His | Val | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Thr | Arg | Trp | Pro | Ile | Val | Tyr | Ser | Pro | Arg | Tyr | Asn | Ile | Thr | Phe |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Met | Gly | Leu | Glu | Lys | Leu | His | Pro | Phe | Asp | Ala | Gly | Lys | Trp | Gly | Lys |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Val | Ile | Asn | Phe | Leu | Lys | Glu | Glu | Lys | Leu | Leu | Ser | Asp | Ser | Met | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Val | Glu | Ala | Arg | Glu | Ala | Ser | Glu | Glu | Asp | Leu | Leu | Val | Val | His | Thr |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |
| Arg | Arg | Tyr | Leu | Asn | Glu | Leu | Lys | Trp | Ser | Phe | Ala | Val | Ala | Thr | Ile |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 130 |     | 135 |     | 140 |     |     |     |     |     |     |     |     |     |     |     |
| Thr | Glu | Ile | Pro | Pro | Val | Ile | Phe | Leu | Pro | Asn | Phe | Leu | Val | Gln | Arg |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     |     | 160 |
| Lys | Val | Leu | Arg | Pro | Leu | Arg | Thr | Gln | Thr | Gly | Gly | Thr | Ile | Met | Ala |
|     |     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |
| Gly | Lys | Leu | Ala | Val | Glu | Arg | Gly | Trp | Ala | Ile | Asn | Val | Gly | Gly | Gly |
|     |     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |
| Phe | His | His | Cys | Ser | Ser | Asp | Arg | Gly | Gly | Gly | Phe | Cys | Ala | Tyr | Ala |
|     |     |     |     | 195 |     |     |     |     | 200 |     |     |     | 205 |     |     |
| Asp | Ile | Thr | Leu | Ala | Ile | Lys | Phe | Leu | Phe | Glu | Arg | Val | Glu | Gly | Ile |
|     |     |     |     | 210 |     |     |     |     | 215 |     |     |     | 220 |     |     |
| Ser | Arg | Ala | Thr | Ile | Ile | Asp | Leu | Asp | Ala | His | Gln | Gly | Asn | Gly | His |
| 225 |     |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     | 240 |
| Glu | Arg | Asp | Phe | Met | Asp | Asp | Lys | Cys | Val | Thr | Cys | Met | Asp | Val | Tyr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Asn | Arg | His | Ile | Tyr | Pro | Gly | Asp | Arg | Phe | Ala | Lys | Gln | Ala | Ile | Arg |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     | 270 |     |     |
| Arg | Lys | Val | Glu | Leu | Glu | Trp | Gly | Thr | Glu | Asp | Asp | Glu | Tyr | Leu | Asp |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     | 285 |     |     |
| Lys | Val | Glu | Arg | Asn | Ile | Lys | Lys | Ser | Leu | Gln | Glu | His | Leu | Pro | Asp |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     | 300 |     |     |
| Val | Val | Val | Tyr | Asn | Ala | Gly | Thr | Asp | Ile | Leu | Glu | Gly | Asp | Arg | Leu |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Gly | Gly | Leu | Ser | Ile | Ser | Pro | Ala | Gly | Ile | Val | Lys | Arg | Asp | Glu | Leu |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Val | Phe | Arg | Met | Val | Arg | Gly | Arg | Arg | Val | Pro | Ile | Leu | Met | Val | Thr |
|     |     |     |     | 340 |     |     |     |     | 345 |     |     |     | 350 |     |     |
| Ser | Gly | Gly | Tyr | Gln | Lys | Arg | Thr | Ala | Arg | Ile | Ile | Ala | Asp | Ser | Ile |
|     |     |     |     | 355 |     |     |     |     | 360 |     |     |     | 365 |     |     |
| Leu | Asn | Leu | Phe | Gly | Leu | Gly | Leu | Ile | Gly | Pro | Glu | Ser | Pro | Ser | Val |
|     |     |     |     | 370 |     |     |     |     | 375 |     |     |     | 380 |     |     |
| Ser | Ala | Gln | Asn | Ser | Asp | Thr | Pro | Leu | Leu | Pro | Pro | Ala | Val | Pro |     |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     |     |

&lt;210&gt; 4377

&lt;211&gt; 812

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4377

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<212> PRT
<213> Homo sapiens
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<210> 4379  
<211> 2347

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4379

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 2347

&lt;210&gt; 4380

&lt;211&gt; 652

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4380

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Lys | Gly | Glu | Asp | Pro | Val | Pro | Thr | Cys | Leu | Thr | Arg | Thr | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Phe | Leu | Arg | Phe | Leu | Cys | Ser | Arg | Phe | Pro | Arg | Gly | Ala | Gln | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Gly | Ala | Leu | Arg | Thr | Leu | Ser | Leu | Leu | Ala | Ala | Gln | Gly | Leu | Trp |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ala | Gln | Thr | Ser | Val | Leu | His | Arg | Glu | Asp | Leu | Glu | Arg | Leu | Gly | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gln | Glu | Ser | Asp | Leu | Arg | Leu | Phe | Leu | Asp | Gly | Asp | Ile | Leu | Arg | Gln |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Asp | Arg | Val | Ser | Lys | Gly | Cys | Tyr | Ser | Phe | Ile | His | Leu | Ser | Phe | Gln |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gln | Phe | Leu | Thr | Ala | Leu | Phe | Tyr | Thr | Leu | Glu | Lys | Glu | Glu | Glu | Glu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asp | Arg | Asp | Gly | His | Thr | Trp | Asp | Ile | Gly | Asp | Val | Gln | Lys | Leu | Leu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Gly | Val | Glu | Arg | Leu | Arg | Asn | Pro | Asp | Leu | Ile | Gln | Ala | Gly | Tyr |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |
| Tyr | Ser | Phe | Gly | Leu | Ala | Asn | Glu | Lys | Arg | Ala | Lys | Glu | Leu | Glu | Ala |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Thr | Phe | Gly | Cys | Arg | Met | Ser | Pro | Asp | Ile | Lys | Gln | Glu | Leu | Leu | Arg |
|     |     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |
| Cys | Asp | Ile | Ser | Cys | Lys | Gly | Gly | His | Ser | Thr | Val | Thr | Asp | Leu | Gln |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |
| Glu | Leu | Leu | Gly | Cys | Leu | Tyr | Glu | Ser | Gln | Glu | Glu | Glu | Leu | Val | Lys |
|     |     |     | 195 |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Glu | Val | Met | Ala | Gln | Phe | Lys | Glu | Ile | Ser | Leu | His | Leu | Asn | Ala | Val |
|     |     |     | 210 |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asp | Val | Val | Pro | Ser | Ser | Phe | Cys | Val | Lys | His | Cys | Arg | Asn | Leu | Gln |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     |     | 240 |
| Lys | Met | Ser | Leu | Gln | Val | Ile | Lys | Glu | Asn | Leu | Pro | Glu | Asn | Val | Thr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |
| Ala | Ser | Glu | Ser | Asp | Ala | Glu | Val | Glu | Arg | Ser | Gln | Asp | Asp | Gln | His |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Met | Leu | Pro | Phe | Trp | Thr | Asp | Leu | Cys | Ser | Ile | Phe | Gly | Ser | Asn | Lys |
|     |     | 275 |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Asp | Leu | Met | Gly | Leu | Ala | Ile | Asn | Asp | Ser | Phe | Leu | Ser | Ala | Ser | Leu |
| 290 |     |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Val | Arg | Ile | Leu | Cys | Glu | Gln | Ile | Ala | Ser | Asp | Thr | Cys | His | Leu | Gln |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Arg | Val | Val | Phe | Lys | Asn | Ile | Ser | Pro | Ala | Asp | Ala | His | Arg | Asn | Leu |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |
| Xaa | Pro | Xaa | Ala | Leu | Arg | Gly | His | Lys | Thr | Val | Thr | Tyr | Leu | Thr | Leu |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Gln | Gly | Asn | Asp | Gln | Asp | Asp | Met | Phe | Pro | Ala | Leu | Cys | Glu | Val | Leu |
|     |     | 355 |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |
| Arg | His | Pro | Glu | Cys | Asn | Leu | Arg | Tyr | Leu | Gly | Leu | Val | Ser | Cys | Ser |
|     | 370 |     |     |     | 375 |     |     |     |     |     | 380 |     |     |     |     |
| Ala | Thr | Thr | Gln | Gln | Trp | Ala | Asp | Leu | Ser | Leu | Ala | Leu | Glu | Val | Asn |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Gln | Ser | Leu | Thr | Cys | Val | Asn | Leu | Ser | Asp | Asn | Glu | Leu | Leu | Asp | Glu |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     | 415 |
| Gly | Ala | Lys | Leu | Leu | Tyr | Thr | Thr | Leu | Arg | His | Pro | Lys | Cys | Phe | Leu |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Gln | Arg | Leu | Ser | Leu | Glu | Asn | Cys | His | Leu | Thr | Glu | Ala | Asn | Cys | Lys |
|     |     | 435 |     |     |     | 440 |     |     |     |     |     | 445 |     |     |     |
| Asp | Leu | Ala | Ala | Val | Leu | Val | Val | Ser | Arg | Glu | Leu | Thr | His | Leu | Cys |
|     | 450 |     |     |     | 455 |     |     |     |     |     | 460 |     |     |     |     |
| Leu | Ala | Lys | Asn | Pro | Ile | Gly | Asn | Thr | Gly | Val | Lys | Phe | Leu | Cys | Glu |
| 465 |     |     |     |     | 470 |     |     |     | 475 |     |     |     |     |     | 480 |
| Gly | Leu | Arg | Tyr | Pro | Glu | Cys | Lys | Leu | Gln | Thr | Leu | Val | Leu | Trp | Asn |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |
| Cys | Asp | Ile | Thr | Ser | Asp | Gly | Cys | Cys | Asp | Leu | Thr | Lys | Leu | Leu | Gln |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Glu | Lys | Ser | Ser | Leu | Leu | Cys | Leu | Asp | Leu | Gly | Leu | Asn | His | Ile | Gly |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Val | Lys | Gly | Met | Lys | Phe | Leu | Cys | Glu | Ala | Leu | Arg | Lys | Pro | Leu | Cys |
|     | 530 |     |     |     |     | 535 |     |     |     |     |     | 540 |     |     |     |
| Asn | Leu | Arg | Cys | Leu | Trp | Leu | Trp | Gly | Cys | Ser | Ile | Pro | Pro | Phe | Ser |
| 545 |     |     |     |     | 550 |     |     |     | 555 |     |     |     |     |     | 560 |
| Cys | Glu | Asp | Val | Cys | Ser | Ala | Leu | Ser | Cys | Asn | Gln | Ser | Leu | Val | Thr |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|
|     |     |     |     | 565 |     |     |     |     |     | 570 |     |     |     |     |     | 575 |  |  |  |
| Leu | Asp | Leu | Gly | Gln | Asn | Pro | Leu | Gly | Ser | Ser | Gly | Val | Lys | Met | Leu |     |  |  |  |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |     |  |  |  |
| Phe | Glu | Thr | Leu | Thr | Cys | Ser | Ser | Gly | Thr | Leu | Arg | Thr | Leu | Arg | Leu |     |  |  |  |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |     |  |  |  |
| Lys | Ile | Asp | Asp | Phe | Asn | Asp | Glu | Leu | Asn | Lys | Leu | Leu | Glu | Glu | Ile |     |  |  |  |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |     |  |  |  |
| Glu | Glu | Lys | Asn | Pro | Gln | Leu | Ile | Ile | Asp | Thr | Glu | Lys | His | His | Pro |     |  |  |  |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |     |  |  |  |
| Trp | Glu | Glu | Arg | Pro | Ser | Ser | His | Asp | Phe | Met | Ile |     |     |     |     |     |  |  |  |
|     |     |     |     | 645 |     |     |     | 650 |     |     |     |     |     |     |     |     |  |  |  |

&lt;210&gt; 4381

&lt;211&gt; 1638

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4381

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1080

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&lt;210&gt; 4382

&lt;211&gt; 325

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4382

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Gln | Tyr | Lys | Gly | Thr | Met | Arg | Glu | Ala | Gly | Arg | Ala | Met | His |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Leu | Lys | Lys | Arg | Glu | Arg | Gln | Arg | Glu | Gln | Met | Glu | Val | Leu | Lys |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Gln | Arg | Ile | Ala | Glu | Glu | Thr | Ile | Leu | Lys | Ser | Gln | Val | Asp | Lys | Arg |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Phe | Ser | Ala | His | Tyr | Asp | Ala | Val | Glu | Ala | Glu | Leu | Lys | Ser | Ser | Ala |
|     | 50  |     |     |     | 55  |     |     |     |     |     | 60  |     |     |     |     |
| Val | Gly | Leu | Val | Thr | Leu | Asn | Asp | Met | Lys | Ala | Arg | Gln | Glu | Ala | Leu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Val | Arg | Glu | Arg | Glu | Arg | Gln | Leu | Ala | Lys | Arg | Gln | His | Leu | Glu | Glu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gln | Arg | Leu | Gln | Gln | Glu | Arg | Gln | Arg | Glu | Gln | Glu | Gln | Arg | Arg | Glu |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Arg | Lys | Arg | Lys | Ile | Ser | Cys | Leu | Ser | Phe | Ala | Leu | Asp | Asp | Leu | Asp |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Asp | Gln | Ala | Asp | Ala | Ala | Glu | Ala | Arg | Arg | Ala | Gly | Asn | Leu | Gly | Lys |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asn | Pro | Asp | Val | Asp | Thr | Ser | Phe | Leu | Pro | Asp | Arg | Asp | Arg | Glu | Glu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Glu | Glu | Asn | Arg | Leu | Arg | Glu | Glu | Leu | Arg | Gln | Glu | Trp | Glu | Ala | Gln |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Arg | Glu | Lys | Val | Lys | Asp | Glu | Glu | Met | Glu | Val | Thr | Phe | Ser | Tyr | Trp |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Asp | Gly | Ser | Gly | His | Arg | Arg | Thr | Val | Arg | Val | Arg | Lys | Gly | Asn | Thr |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Val | Gln | Gln | Phe | Leu | Lys | Lys | Ala | Leu | Gln | Gly | Leu | Arg | Lys | Asp | Phe |

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      210              215              220
Leu Glu Leu Arg Ser Ala Gly Val Glu Gln Leu Met Phe Ile Lys Glu
225              230              235              240
Asp Leu Ile Leu Pro His Tyr His Thr Phe Tyr Asp Phe Ile Ile Ala
      245              250              255
Arg Ala Arg Gly Lys Ser Gly Pro Leu Phe Ser Phe Asp Val His Asp
      260              265              270
Asp Val Arg Leu Leu Ser Asp Ala Thr Met Glu Lys Asp Glu Ser His
      275              280              285
Ala Gly Lys Val Val Leu Arg Ser Trp Tyr Glu Lys Asn Lys His Ile
      290              295              300
Phe Pro Ala Ser Arg Trp Glu Ala Tyr Asp Pro Glu Lys Lys Trp Asp
305              310              315              320
Lys Tyr Thr Ile Arg
      325

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&lt;210&gt; 4383

&lt;211&gt; 419

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4383

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&lt;210&gt; 4384

&lt;211&gt; 139

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4384

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Val Leu Lys His Pro Gln Ile Gln Lys Glu Ser Gln Tyr Ile Lys Tyr
      35              40              45
Leu Cys Cys Asp Asp Thr Arg Thr Leu Asn Gln Trp Val Met Gly Ile
      50              55              60
Arg Ile Ala Lys Tyr Gly Lys Thr Leu Tyr Asp Asn Tyr Gln Arg Ala
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Val Ala Lys Ala Gly Leu Ala Ser Arg Trp Thr Asn Leu Gly Thr Val

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
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|     | 85  |     | 90  |     | 95  |     |     |     |     |     |     |     |     |     |     |
| Asn | Ala | Ala | Ala | Pro | Ala | Gln | Pro | Phe | Thr | Gly | Pro | Lys | Thr | Gly | Thr |
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| Thr | Gln | Pro | Asn | Gly | Gln | Ile | Pro | Gln | Ala | Thr | His | Phe | Phe | Ser | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Val | Leu | Gln | Glu | Ala | Gln | Arg | His | Ala | Glu | Asn |     |     |     |     |     |
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 <213> Homo sapiens

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<210> 4390

<211> 335

<212> PRT

<213> Homo sapiens

<400> 4390

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| Arg | Val | Ala | Arg | Gly | Val | Ala | Ala | Glu | Gly | Arg | Ala | Val | Tyr | Val | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Asp | Asp | Ala | Ala | Val | Leu | Gly | Ala | Glu | Asp | Pro | Ala | Val | Tyr | Gly | Asp |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Ser | Ala | Arg | Glu | Lys | Ala | Leu | Arg | Gly | Ala | Leu | Arg | Ala | Ser | Val | Glu |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Arg | Arg | Leu | Ser | Arg | His | Asp | Val | Val | Ile | Leu | Asp | Ser | Leu | Asn | Tyr |
|     |     | 50  |     |     | 55  |     |     |     |     |     | 60  |     |     |     |     |
| Ile | Lys | Gly | Phe | Arg | Tyr | Glu | Leu | Tyr | Cys | Leu | Ala | Arg | Ala | Ala | Arg |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Thr | Pro | Leu | Cys | Leu | Val | Tyr | Cys | Val | Arg | Pro | Gly | Gly | Pro | Ile | Ala |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Gly | Pro | Gln | Val | Ala | Gly | Ala | Asn | Glu | Asn | Pro | Gly | Arg | Asn | Val | Ser |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Val | Ser | Trp | Arg | Pro | Arg | Ala | Glu | Glu | Asp | Gly | Arg | Ala | Gln | Ala | Ala |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Gly | Ser | Ser | Val | Leu | Arg | Glu | Leu | His | Thr | Ala | Asp | Ser | Val | Val | Asn |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gly | Ser | Ala | Gln | Ala | Asp | Val | Pro | Lys | Glu | Leu | Glu | Arg | Glu | Glu | Ser |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |
| Gly | Ala | Ala | Glu | Ser | Pro | Ala | Leu | Val | Thr | Pro | Asp | Ser | Glu | Lys | Ser |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Ala | Lys | His | Gly | Ser | Gly | Ala | Phe | Tyr | Ser | Pro | Glu | Leu | Leu | Glu | Ala |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Leu | Thr | Leu | Arg | Phe | Glu | Ala | Pro | Asp | Ser | Arg | Asn | Arg | Trp | Asp | Arg |
|     |     | 195 |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| Pro | Leu | Phe | Thr | Leu | Val | Gly | Ile | Glu | Glu | Pro | Leu | Pro | Pro | Ala | Gly |
|     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ile | Arg | Ser | Ala | Leu | Phe | Glu | Asn | Arg | Ala | Pro | Pro | Pro | His | Gln | Ser |
| 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |     |
| Thr | Gln | Ser | Gln | Pro | Leu | Ala | Ser | Gly | Ser | Phe | Leu | His | Gln | Leu | Asp |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Gln | Val | Thr | Ser | Gln | Val | Leu | Ala | Gly | Leu | Met | Glu | Ala | Gln | Lys | Ser |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ala | Val | Pro | Gly | Asp | Leu | Leu | Thr | Leu | Pro | Gly | Thr | Thr | Glu | His | Leu |
|     |     | 275 |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Arg | Phe | Thr | Arg | Pro | Leu | Thr | Met | Ala | Glu | Leu | Ser | Arg | Leu | Arg | Arg |



|   |     |     |     |     |
|---|-----|-----|-----|-----|
| 290   |     | 295 |     | 300 |
| Gln Phe Ile Ser Tyr Thr Lys Met His Pro Asn Asn Glu Asn Leu Pro |     |     |     |     |
| 305   |     | 310 |     | 315 |
| Gln Leu Ala Asn Met Phe Leu Gln Tyr Leu Ser Gln Ser Leu His     |     |     |     |     |
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 <212> DNA  
 <213> Homo sapiens

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 <212> PRT  
 <213> Homo sapiens

<400> 4392  
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| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Ser | Met | Gly | Gly | Pro | Met | Gln | Arg | Val | Thr | Pro | Pro | Arg | Gly | Met |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | Ser | Val | Gly | Pro | Gln | Ser | Tyr | Gly | Gly | Gly | Met | Arg | Pro | Pro | Pro |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asn | Ser | Leu | Ala | Gly | Pro | Gly | Leu | Pro | Ala | Met | Asn | Met | Gly | Pro | Gly |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Val | Arg | Gly | Pro | Trp | Ala | Ser | Pro | Ser | Gly | Asn | Ser | Ile | Pro | Tyr | Ser |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ser | Ser | Ser | Pro | Gly | Ser | Tyr | Thr | Gly | Pro | Pro | Gly | Gly | Gly | Gly | Pro |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Pro | Gly | Thr | Pro | Ile | Met | Pro | Ser | Pro | Gly | Asp | Ser | Thr | Asn | Ser | Ser |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Glu | Asn | Met | Tyr | Thr | Ile | Met | Asn | Pro | Ile | Gly | Gln | Gly | Ala | Gly | Arg |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ala | Asn | Phe | Pro | Leu | Gly | Pro | Gly | Pro | Glu | Gly | Pro | Met | Ala | Ala | Met |
|     |     | 130 |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |
| Ser | Ala | Met | Glu | Pro | His | His | Val | Asn | Gly | Ser | Leu | Gly | Ser | Gly | Asp |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Met | Asp | Gly | Leu | Pro | Lys | Ser | Ser | Pro | Gly | Ala | Val | Ala | Gly | Leu | Ser |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asn | Ala | Pro | Gly | Thr | Pro | Arg | Asp | Asp | Gly | Glu | Met | Ala | Ala | Ala | Gly |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Thr | Phe | Leu | His | Pro | Phe | Pro | Ser | Glu | Ser | Tyr | Ser | Pro | Gly | Met | Thr |
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| Met | Ser | Val |     |     |     |     |     |     |     |     |     |     |     |     |     |
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&lt;210&gt; 4393

&lt;211&gt; 2171

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4393

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 210 215 220  
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 275 280 285  
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 305 310 315 320  
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&lt;210&gt; 4396

&lt;211&gt; 463

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4396

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Thr | Ser | Lys | Leu | Pro | Val | Val | Pro | Gly | Glu | Glu | Glu | Asn | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ile | Leu | Met | Ala | Lys | Glu | Arg | Leu | Glu | Ala | Leu | Arg | Thr | Ala | Phe | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Gly | Asp | Leu | Pro | Gln | Ala | Ala | Ser | His | Leu | Gln | Glu | Leu | Leu | Ala |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ser | Thr | Glu | Ser | Ile | Arg | Leu | Glu | Val | Gly | Val | Thr | Gly | Glu | Ser | Gly |
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| Asp | Pro | Gly | Ala | Ala | Leu | Thr | Gly | Val | Met | Glu | Thr | Thr | Met | Gln | Pro |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Ser | Pro | Tyr | Pro | His | Pro | Gln | Phe | Pro | Asp | Val | Thr | Leu | Trp | Asp | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Pro | Gly | Ala | Gly | Ser | Pro | Gly | Cys | Pro | Ala | Asp | Lys | Tyr | Leu | Lys | Gln |
|     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Val | Asp | Phe | Ser | Arg | Tyr | Asp | Phe | Phe | Leu | Leu | Val | Ser | Pro | Arg | Arg |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Cys | Gly | Ala | Val | Glu | Thr | Arg | Leu | Ala | Ala | Glu | Ile | Leu | Cys | Gln | Gly |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Lys | Lys | Phe | Tyr | Phe | Val | Arg | Thr | Lys | Val | Asp | Glu | Asp | Leu | Ala | Ala |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
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<212> DNA
<213> Homo sapiens
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 Cys Arg Ser Asp Thr Val Met Glu Lys Arg Ser Phe Lys Val Pro Leu  
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 Gly Lys Gly Arg Arg Cys Val Val Leu Ala Asp Gly Phe Tyr Glu Trp  
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 195 200 205  
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|---|-----|-----|-----|-----|-----|
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| Ile His Pro Thr Glu Asn Ile Thr Phe His Ala Val Ser Ser Val Val |     |     |     |     |     |
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| Asn Asn Ser Arg Asn Asn Thr Pro Glu Cys Leu Ala Pro Val Asp Leu |     |     |     |     |     |
|   | 260 |     | 265 |     | 270 |
| Val Val Lys Lys Glu Leu Arg Ala Ser Gly Ser Ser Gln Arg Met Leu |     |     |     |     |     |
|   | 275 |     | 280 |     | 285 |
| Gln Trp Leu Ala Thr Lys Ser Pro Lys Lys Glu Asp Ser Lys Thr Pro |     |     |     |     |     |
|   | 290 |     | 295 |     | 300 |
| Gln Lys Glu Glu Ser Asp Val Pro Gln Trp Ser Ser Gln Phe Leu Gln |     |     |     |     |     |
| 305   |     | 310 |     | 315 | 320 |
| Lys Ser Pro Leu Pro Thr Lys Arg Gly Thr Ala Gly Leu Leu Glu Gln |     |     |     |     |     |
|   | 325 |     | 330 |     | 335 |
| Trp Leu Lys Arg Glu Lys Glu Glu Glu Pro Val Ala Lys Arg Pro Tyr |     |     |     |     |     |
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| Ser Gln   |     |     |     |     |     |

&lt;210&gt; 4399

&lt;211&gt; 723

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4399

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&lt;210&gt; 4400

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      35           40           45
Ala Leu Asp Glu Gln Leu Val Gln Val Lys Glu Ala Glu Arg His His
      50           55           60
Ser Ser Pro Lys Arg Glu Leu Pro Pro Gly Ile Gly Asp Met Val Glu
65           70           75           80
Leu Met Gly Val Gln Asp Gln His Met Asp Glu Arg Asp Val Arg Arg
      85           90           95
Phe Gln Leu Lys Ile Ala Glu Leu Asn Ser Val Ile Arg Lys Leu Glu
      100          105          110
Asp Arg Asn Thr Leu Leu Ala Asp Glu Arg Asn Glu Leu Leu Lys Arg
      115          120          125
Ser Arg Glu Thr Glu Val Gln Leu Lys Pro Leu Val Glu Lys Asn Lys
      130          135          140
Arg Met Asn Lys Lys Asn Glu Asp Leu Leu Gln Ser Ile Gln Arg Met
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      165          170          175
Lys Leu Ser Ala Gln Ala Ser Leu Lys Arg His Thr Ser Leu Asn Asp
      180          185          190
Leu Ser Leu Thr Arg Asp Glu Gln Glu Ile Glu Phe Leu Arg Leu Gln
      195          200          205
Val Leu Glu Gln Gln His Val Ile Asp Asp Leu Ser Leu Glu Arg Glu
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&lt;210&gt; 4402

&lt;211&gt; 252

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4402

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ala | Val | Asp | Ser | Phe | Tyr | Leu | Leu | Tyr | Arg | Glu | Ile | Ala | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Cys | Asn | Cys | Tyr | Met | Glu | Ala | Leu | Ala | Leu | Val | Gly | Ala | Trp | Tyr |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Ala | Arg | Lys | Ser | Ile | Thr | Val | Ile | Cys | Asp | Phe | Tyr | Ser | Leu | Ile |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Arg | Leu | His | Phe | Ile | Pro | Arg | Leu | Gly | Ser | Arg | Ala | Asp | Leu | Ile | Lys |
|     |     | 50  |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Gln | Tyr | Gly | Arg | Trp | Ala | Val | Val | Ser | Gly | Ala | Thr | Asp | Gly | Ile | Gly |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Lys | Ala | Tyr | Ala | Glu | Leu | Ala | Ser | Arg | Gly | Leu | Asn | Ile | Ile | Leu |     |
|     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |
| Ile | Ser | Arg | Asn | Glu | Glu | Lys | Leu | Gln | Val | Val | Ala | Lys | Asp | Ile | Ala |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Asp | Thr | Tyr | Lys | Val | Glu | Thr | Asp | Ile | Ile | Val | Ala | Asp | Phe | Ser | Ser |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Gly | Arg | Glu | Ile | Tyr | Leu | Pro | Ile | Arg | Glu | Ala | Leu | Lys | Asp | Lys | Asp |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Val | Gly | Ile | Leu | Val | Asn | Asn | Val | Gly | Val | Phe | Tyr | Pro | Tyr | Pro | Gln |

|   |     |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|-----|
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| Tyr Phe Thr Gln Leu Ser Glu Asp Lys Leu Trp Asp Ile Ile Asn Val |     |     |     |     |     |     |
|   | 165 |     | 170 |     | 175 |     |
| Asn Ile Ala Ala Ala Ser Leu Met Val His Val Val Leu Pro Gly Met |     |     |     |     |     |     |
|   | 180 |     | 185 |     | 190 |     |
| Val Glu Arg Lys Lys Gly Ala Ile Val Thr Ile Ser Ser Gly Leu Leu |     |     |     |     |     |     |
|   | 195 |     | 200 |     | 205 |     |
| Leu Gln Pro Thr Pro Gln Leu Ala Ala Phe Ser Ala Ser Lys Ala Tyr |     |     |     |     |     |     |
|   | 210 |     | 215 |     | 220 |     |
| Leu Asp His Phe Ser Arg Ala Leu Gln Tyr Glu Tyr Ala Ser Lys Gly |     |     |     |     |     |     |
| 225   |     | 230 |     | 235 |     | 240 |
| Ile Phe Val Gln Ser Leu Xaa Pro Phe Tyr Val Ala                 |     |     |     |     |     |     |
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<210> 4404  
 <211> 779  
 <212> PRT  
 <213> Homo sapiens

<400> 4404

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          20          25          30
Gly Met Met Pro Asn Gly Gln Asp Met Ser Thr Met Glu Ser Gly Pro
          35          40          45
Asn Asn His Gly Asn Phe Gln Gly Asp Ser Asn Phe Asn Arg Met Trp
          50          55          60
Gln Pro Glu Trp Gly Met His Gln Gln Pro Pro His Pro Pro Pro Asp
65          70          75          80
Gln Pro Trp Met Pro Pro Thr Pro Gly Pro Met Asp Ile Val Pro Pro
          85          90          95
Ser Glu Asp Ser Asn Ser Gln Asp Ser Gly Glu Phe Ala Pro Asp Asn
          100         105         110
Arg His Ile Phe Asn Gln Asn Asn His Asn Phe Gly Gly Pro Pro Asp
          115         120         125
Asn Phe Ala Val Gly Pro Val Asn Gln Phe Asp Tyr Gln His Gly Ala
          130         135         140
Ala Phe Gly Pro Pro Gln Gly Gly Phe His Pro Pro Tyr Trp Gln Pro
145          150         155         160
Gly Pro Pro Gly Pro Pro Ala Pro Pro Gln Asn Arg Arg Glu Arg Pro
          165         170         175
Ser Ser Phe Arg Asp Arg Gln Arg Ser Pro Ile Ala Leu Pro Val Lys
          180         185         190
Gln Glu Pro Pro Gln Ile Asp Ala Val Lys Arg Arg Thr Leu Pro Ala
          195         200         205
Trp Ile Arg Glu Gly Leu Glu Lys Met Glu Arg Glu Lys Gln Lys Lys
          210         215         220
Leu Glu Lys Glu Arg Met Glu Gln Gln Arg Ser Gln Leu Ser Lys Lys
225          230         235         240
Lys Lys Lys Ala Thr Glu Asp Ala Glu Gly Gly Asp Gly Pro Arg Leu
          245         250         255
Pro Gln Arg Ser Lys Phe Asp Ser Asp Glu Glu Glu Glu Asp Thr Glu
          260         265         270
Asn Val Glu Ala Ala Ser Ser Gly Lys Val Thr Arg Ser Pro Ser Pro
          275         280         285
Val Pro Gln Glu Glu His Ser Asp Pro Glu Met Thr Glu Glu Glu Lys
          290         295         300
Glu Tyr Gln Met Met Leu Leu Thr Lys Met Leu Leu Thr Glu Ile Leu
305          310         315         320
Leu Asp Val Thr Asp Glu Glu Ile Tyr Tyr Val Ala Lys Asp Ala His
          325         330         335
Arg Lys Ala Thr Lys Ala Pro Ala Lys Gln Leu Ala Gln Ser Ser Ala
          340         345         350
Leu Ala Ser Leu Thr Gly Leu Gly Gly Leu Gly Gly Tyr Gly Ser Gly
          355         360         365
Asp Ser Glu Asp Glu Arg Ser Asp Arg Gly Ser Glu Ser Ser Asp Thr

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 Ser Val Leu Glu Pro Lys Lys Glu His Lys Glu Lys Glu Lys Gln Gly  
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 Gly Asn Ser His Lys His Lys Gly Glu Ala Lys Glu Gln Glu Arg Lys  
 625 630 635 640  
 Lys Glu Arg Ser Arg Ser Ile Asp Lys Asp Arg Lys Lys Lys Asp Lys  
 645 650 655  
 Glu Arg Glu Arg Glu Gln Asp Lys Arg Lys Glu Lys Gln Lys Arg Glu  
 660 665 670  
 Glu Lys Asp Phe Lys Phe Ser Ser Gln Asp Asp Arg Leu Lys Arg Lys  
 675 680 685  
 Arg Glu Ser Glu Arg Thr Phe Ser Arg Ser Gly Ser Ile Ser Val Lys  
 690 695 700  
 Ile Ile Arg His Asp Ser Arg Gln Asp Ser Lys Lys Ser Thr Thr Lys  
 705 710 715 720  
 Asp Ser Lys Lys His Ser Gly Ser Asp Ser Ser Gly Arg Ser Ser Ser  
 725 730 735  
 Glu Ser Pro Gly Ser Ser Lys Glu Lys Lys Ala Lys Lys Pro Lys His  
 740 745 750  
 Ser Arg Ser Arg Ser Val Glu Lys Ser Gln Arg Ser Gly Lys Lys Ala  
 755 760 765  
 Ser Arg Lys His Lys Ser Lys Ser Arg Ser Arg  
 770 775

&lt;210&gt; 4405

&lt;211&gt; 918

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4405

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300
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900
aaaaaaaaaa aaaaaaaaaa
918

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&lt;210&gt; 4406

&lt;211&gt; 138

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4406

```

Leu Cys Leu Gln Gly Tyr Tyr Arg Gly Ala Val Gly Ala Leu Leu Val
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Phe Asp Leu Thr Lys His Gln Thr Tyr Ala Val Val Glu Arg Trp Leu
20           25           30
Lys Glu Leu Tyr Asp His Ala Glu Ala Thr Ile Val Val Met Leu Val
35           40           45
Gly Asn Lys Ser Asp Leu Ser Gln Ala Arg Glu Val Pro Thr Glu Glu
50           55           60
Ala Arg Met Phe Ala Glu Asn Asn Gly Leu Leu Phe Leu Glu Thr Ser
65           70           75           80
Ala Leu Asp Ser Thr Asn Val Glu Leu Ala Phe Glu Thr Val Leu Lys

```

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |  |  |  |
| Glu | Ile | Phe | Ala | Lys | Val | Ser | Lys | Gln | Arg | Gln | Asn | Ser | Ile | Arg | Thr |  |  |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |  |  |
| Asn | Ala | Ile | Thr | Leu | Gly | Ser | Ala | Gln | Ala | Gly | Gln | Glu | Pro | Gly | Pro |  |  |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |  |  |
| Gly | Glu | Lys | Arg | Ala | Cys | Cys | Ile | Ser | Leu |     |     |     |     |     |     |  |  |  |  |
|     | 130 |     |     |     |     |     | 135 |     |     |     |     |     |     |     |     |  |  |  |  |

&lt;210&gt; 4407

&lt;211&gt; 974

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4407

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974

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&lt;210&gt; 4408

&lt;211&gt; 158

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4408

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His Cys Phe Glu Gly Val Thr Cys Ile Ile Phe Cys Ala Ala Leu Ser
      20             25             30
Ala Tyr Asp Met Val Leu Val Glu Asp Glu Glu Val Asn Arg Met His
      35             40             45
Glu Ser Leu His Leu Phe Asn Ser Ile Cys Asn His Lys Tyr Phe Ser
      50             55             60
Thr Thr Ser Ile Val Leu Phe Leu Asn Lys Lys Asp Ile Phe Gln Glu
      65             70             75             80
Lys Val Thr Lys Val His Leu Ser Ile Cys Phe Pro Glu Tyr Thr Gly
      85             90             95
Pro Asn Thr Phe Glu Asp Ala Gly Asn Tyr Ile Lys Asn Gln Phe Leu
      100            105            110
Asp Leu Asn Leu Lys Lys Glu Asp Lys Glu Ile Tyr Ser His Met Thr
      115            120            125
Cys Ala Thr Asp Thr Gln Asn Val Lys Phe Val Phe Asp Ala Val Thr
      130            135            140
Asp Ile Ile Ile Lys Glu Asn Leu Lys Asp Cys Gly Leu Phe
      145            150            155

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&lt;210&gt; 4409

&lt;211&gt; 4217

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4409

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 aaaaaaaaaa aaaaaaa  
 4217

<210> 4410

<211> 405

<212> PRT

<213> Homo sapiens

<400> 4410

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Ser | Ser | Glu | Glu | Glu | Glu | Gly | Glu | Glu | Gly | Glu | Ala | Gly | Gly | Lys |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Gly | Pro | Arg | Gly | Ser | Arg | Ser | Ser | Arg | Ala | Asp | Pro | Pro | Pro | His |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | His | Met | Ala | Thr | Arg | Ser | Arg | Glu | Asn | Ala | Arg | Arg | Arg | Gly | Thr |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Pro | Glu | Pro | Glu | Glu | Ala | Gly | Arg | Arg | Gly | Gly | Lys | Arg | Pro | Lys | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Pro | Gly | Val | Ala | Ser | Ala | Ser | Ala | Arg | Gly | Pro | Pro | Ala | Thr | Asp |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |
| Gly | Leu | Gly | Ala | Lys | Val | Lys | Leu | Glu | Glu | Lys | Gln | His | His | Pro | Cys |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Gln | Lys | Cys | Pro | Arg | Val | Phe | Asn | Asn | Arg | Trp | Tyr | Leu | Glu | Lys | His |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Met | Asn | Val | Thr | His | Ser | Arg | Met | Gln | Ile | Cys | Asp | Gln | Cys | Gly | Lys |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Arg | Phe | Leu | Leu | Glu | Ser | Glu | Leu | Leu | Leu | His | Arg | Gln | Thr | Asp | Cys |
|     |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Glu | Arg | Asn | Ile | Gln | Cys | Val | Thr | Cys | Gly | Lys | Ala | Phe | Lys | Lys | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Trp | Ser | Leu | His | Glu | His | Asn | Lys | Ile | Val | His | Gly | Tyr | Ala | Glu | Lys |
|     |     |     |     | 165 |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Lys | Phe | Ser | Cys | Glu | Ile | Cys | Glu | Lys | Lys | Phe | Tyr | Thr | Met | Ala | His |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Val | Arg | Lys | His | Met | Val | Ala | His | Thr | Lys | Asp | Met | Pro | Phe | Thr | Cys |
|     |     |     | 195 |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Glu | Thr | Cys | Gly | Lys | Ser | Phe | Lys | Arg | Ser | Met | Ser | Leu | Lys | Val | His |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ser | Leu | Gln | His | Ser | Gly | Glu | Lys | Pro | Phe | Arg | Cys | Glu | Asn | Cys | Asp |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Glu | Arg | Phe | Gln | Tyr | Lys | Tyr | Gln | Leu | Arg | Ser | His | Met | Ser | Ile | His |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Ile | Gly | His | Lys | Gln | Phe | Met | Cys | Gln | Trp | Cys | Gly | Lys | Asp | Phe | Asn |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Met | Lys | Gln | Tyr | Phe | Asp | Glu | His | Met | Lys | Thr | His | Thr | Gly | Glu | Lys |
|     |     |     | 275 |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Pro | Phe | Ile | Cys | Glu | Ile | Cys | Gly | Lys | Ser | Phe | Thr | Ser | Arg | Pro | Asn |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Met | Lys | Arg | His | Arg | Arg | Thr | His | Thr | Gly | Glu | Lys | Pro | Tyr | Pro | Cys |

```

305          310          315          320
Asp Val Cys Gly Gln Arg Phe Arg Phe Ser Asn Met Leu Lys Ala His
          325          330          335
Lys Glu Lys Cys Phe Arg Val Ser His Thr Leu Ala Gly Asp Gly Val
          340          345          350
Pro Ala Ala Pro Gly Leu Pro Pro Thr Gln Pro Gln Ala His Ala Leu
          355          360          365
Pro Leu Leu Pro Gly Leu Pro Gln Thr Leu Pro Pro Pro Pro His Leu
          370          375          380
Pro Pro Pro Pro Pro Leu Phe Pro Thr Thr Ala Ser Pro Gly Gly Arg
385          390          395          400
Met Asn Ala Asn Asn
          405

```

<210> 4411  
 <211> 484  
 <212> DNA  
 <213> Homo sapiens

```

<400> 4411
cccaaggcag cagcaggctt gccaggtggg aaggaccaga aggcagccca gcggtgggga
60
gtgtggagtg aatggggctg aaagggtagg gctggccac agagggtggg gaggtgcag
120
caaaagagga gtttagggtg gctatggtgc aggggcagct gtatgcttca cctcaaagt
180
tactgtcttc tctctccatc aaggaggaag ggcccaggct ggggttagga gggctaggg
240
cccaggctgt gtgtcccctt tttctctcct ggtgccctgc cccccacgc tgtcatctcc
300
ctcagtggca gtgggggttc atcactgggt cttcaggctc cttgcccatt gctggtggtg
360
ttccagggtg gcccaaccag gcggccctg cctctaggca gcgcgtagggt ttccttgggc
420
agcctcaatc ctgccagcgc cagcatgtct cctgcacag aagccatcaa gcacctttgg
480
atcc
484

```

<210> 4412  
 <211> 113  
 <212> PRT  
 <213> Homo sapiens

```

<400> 4412
Met Val Gln Gly Gln Leu Tyr Ala Ser Pro Gln Met Leu Leu Ser Ser
1          5          10          15
Leu Ser Ile Lys Glu Glu Gly Pro Arg Leu Gly Leu Gly Gly Leu Gly
20          25          30
Ala Gln Ala Val Cys Pro Leu Phe Ser Ser Trp Cys Pro Ala Pro Pro
35          40          45
Arg Cys His Leu Pro Gln Trp Gln Trp Gly Phe Ile Thr Gly Ser Ser
50          55          60
Gly Pro Leu Pro Met Ala Gly Gly Val Pro Gly Gly Pro Asn Gln Ala

```



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     | 70  |     | 75  |     | 80  |     |     |     |     |     |     |     |     |     |
| Ala | Pro | Ala | Ser | Arg | Gln | Arg | Val | Gly | Phe | Leu | Gly | Gln | Pro | Gln | Ser |
|     |     | 85  |     |     |     | 90  |     |     |     |     |     |     | 95  |     |     |
| Cys | Gln | Arg | Gln | His | Val | Ser | Leu | His | Arg | Ser | His | Gln | Ala | Pro | Leu |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |

Asp

&lt;210&gt; 4413

&lt;211&gt; 1097

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4413

```

atggcgctgc tttttgcacg ttctttgcgc ttgtgccgct ggggagccaa acgattggga
60
gttgccctcca cagagcgcca gagaggcgct agtttcaaac tggaagaaaa aaccgcccac
120
agcagcctgg cactcttcag agatgatacg ggtgtcaaat atggcttggt gggattggag
180
cccaccaagg tgccttgaat gtggagcgct tccgggagtt ggcaggtgct ggcagacaca
240
gcggtcacca gtggcagaca ctactgggaa gtgacagtga agcgctccca gcagttccgg
300
ataggagtgg cagatgtgga catgtcccgg gatagctgca ttggtgttga tgatcgttcc
360
tggtgttca cctatgccc ggcgaagtgg tacaccatgt tggccaacga gaaagcccca
420
gttgagggtta ttgggcagcc agagaagggtg gggctgttgc tggagtatga ggcccagaag
480
ctgagcctgg tggatgtgag ccaggctctt gtggttcaca cgctacagac agatttccgg
540
ggtccagtgg tgcctgcctt tgctctctgg gatggggagc tgctgacca ttcagggtt
600
gaggtgccc agggcctcta gtatgtccat tactggagtc cctaatacag cctttggcca
660
gcctcctttt gaaagtgtcc gaagcctttt tactttgcct caagcaacct ctagctccca
720
caattcagtg ttgggtcctc tgtgcaatat catgatcatc ttcctcatcc cctaccttgt
780
gaaagctagg catacagcca aaccctcctt tccccaccc accaactact gccaatattc
840
taggetacca tgggtgtatc ttcttgacc tgcttccttc agtcctctg cctccctttg
900
cccaggcctt tctcagactg tattccatcc tggggtctta tcattcagct ttgtttgaat
960
ttattaatca ccatgatacc tctccctccc ttgtccaca tgtaacttgt tcttggggct
1020
ctaccagatg gctgaagagt aaatcctttc tacctctggc tgaaaaaaaa aaaaaaaaaa
1080
aaaaaaaaaa aaaaaaa
1097

```

&lt;210&gt; 4414

<211> 65  
 <212> PRT  
 <213> Homo sapiens

<400> 4414

```

Met Ala Leu Leu Phe Ala Arg Ser Leu Arg Leu Cys Arg Trp Gly Ala
 1           5           10          15
Lys Arg Leu Gly Val Ala Ser Thr Glu Arg Gln Arg Gly Val Ser Phe
          20          25          30
Lys Leu Glu Glu Lys Thr Ala His Ser Ser Leu Ala Leu Phe Arg Asp
          35          40          45
Asp Thr Gly Val Lys Tyr Gly Leu Val Gly Leu Glu Pro Thr Lys Val
          50          55          60
Pro
65

```

<210> 4415  
 <211> 775  
 <212> DNA  
 <213> Homo sapiens

<400> 4415

```

taaaaggaaa acagtgtctt tattgtgtgt agttctaaca aacgttcact gtgtgcgcat
60
tccagcagaa agagacaaag atctttgttc aaaatattct gaaaaaggta aactaactgc
120
attattgaat acacaaaagg aatgttaccg ttacttggtc atagtcaaag gtgaagttaa
180
aaaaaaaggg aagttaaata actgaagtaa tggtttgccc aaatagcaaa cgtaggatac
240
aggcgtgggc aaagagcagc tactgaagct catgaggagg atgctggata tagggtaggt
300
aacttgacaa atgcctctgc ttctttggaa ccttcttcct agatcacccc cacaaattcc
360
aaacctggct ctttcagagc acaacagcca aatgtaacta aactcctcat tacttctgtg
420
atatttggca acagaatgag atagttaa aaataatcaa tttcttggtg agacaagaca
480
tgtctgaatc catttctctt ggggtaggag gaggtaatga acattaacgt tctgcatctc
540
aatctcctaa aatggaattt aaccagatag atatcgcttg agattttaaa gcaggagata
600
ccataagtaa tgatactcca ggctgtaaa gcatttttca ttgtcccaca ttgcagctaa
660
atgagtataa actcgacagt gttctgattt cacaacatat gcatttatga caactgctaa
720
aacaacttta caggctcaaa cgatagggtc caagggattt ttgtttttgc ttaag
775

```

<210> 4416  
 <211> 100  
 <212> PRT  
 <213> Homo sapiens

&lt;400&gt; 4416

```

Met Lys Asn Ala Leu Gln Ala Trp Ser Ile Ile Thr Tyr Gly Ile Ser
 1           5           10           15
Cys Phe Lys Ile Ser Ser Asp Ile Tyr Leu Val Lys Phe His Phe Arg
      20           25           30
Arg Leu Arg Cys Arg Thr Leu Met Phe Ile Thr Ser Ser Tyr Pro Lys
      35           40           45
Arg Asn Gly Phe Arg His Val Leu Ser Gln Gln Glu Ile Asp Phe Phe
      50           55           60
Leu Asn Tyr Leu Ile Leu Leu Pro Asn Ile Thr Glu Val Met Arg Ser
      65           70           75           80
Leu Val Thr Phe Gly Cys Cys Ala Leu Lys Glu Pro Gly Leu Glu Phe
      85           90           95
Val Gly Val Ile
      100

```

&lt;210&gt; 4417

&lt;211&gt; 980

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4417

```

nnacgcgtga gggaaaagca gaggcagttg gaggtagcgc aagttgaaaa ccagctgcta
60
aaaatgaagg tggaatcgtc ccaagaagcc aatgctgagg tgatgcgaga gatgaccaag
120
aagctgtaca gccagtatga ggagaagctg caggaagaac agaggaagca cagtgcctgag
180
aaggaggctc ttttggaaga aaccaatagt tttctgaaag cgattgaaga agccaataaa
240
aagatgcaag cagcagagat cagcctagag gagaaagacc agaggatcgg ggagctggac
300
aggctgattg agcgcattga aaaggaacgt catcaactgc aacttcaact cctagaacat
360
gaaacagaaa tgtctgggga gttaactgat tctgacaagg aaaggtatca gcagttggag
420
gaggcatcag ccagcctccg tgagcggatc agacacctag atgacatggt gcattgccag
480
cagaagaaag tcaagcagat gggtgaggag attgagtcatt taaagaaaaa agtgcaacag
540
aagcagctcc tgatactgca gcttttagaa aaaatctctt tcttggaagg agagaataat
600
gaactacaaa gcaggttgga ctatttgaca gaaaccagg ccaagactga agtggaaca
660
agagaaattg gagggtgctg tgatcttctt ccagcccaa caggcaggac tcgtgaaatt
720
gtgatgcctt ctaggaacta caccatac acaagagtcc tggagttatc ctcaaagaaa
780
acgctgactt aggcactcag aggcatacac tttttacaga tggacaaaag ctctggaacc
840
ctgtggcttc aaatcctttg ggaagggtga ctgtgtttc cctacacac agtgtaagcc
900
ggaatgggaa tcgctgaggc tctgatccac ttctaagaca ggaaggaaaag tgaaggcaga
960

```

gtgagcaggt aagagaggga  
980

<210> 4418  
<211> 263  
<212> PRT  
<213> Homo sapiens

<400> 4418  
Xaa Arg Val Arg Glu Lys Gln Arg Gln Leu Glu Val Ala Gln Val Glu  
1 5 10 15  
Asn Gln Leu Leu Lys Met Lys Val Glu Ser Ser Gln Glu Ala Asn Ala  
20 25 30  
Glu Val Met Arg Glu Met Thr Lys Lys Leu Tyr Ser Gln Tyr Glu Glu  
35 40 45  
Lys Leu Gln Glu Glu Gln Arg Lys His Ser Ala Glu Lys Glu Ala Leu  
50 55 60  
Leu Glu Glu Thr Asn Ser Phe Leu Lys Ala Ile Glu Glu Ala Asn Lys  
65 70 75 80  
Lys Met Gln Ala Ala Glu Ile Ser Leu Glu Glu Lys Asp Gln Arg Ile  
85 90 95  
Gly Glu Leu Asp Arg Leu Ile Glu Arg Met Glu Lys Glu Arg His Gln  
100 105 110  
Leu Gln Leu Gln Leu Leu Glu His Glu Thr Glu Met Ser Gly Glu Leu  
115 120 125  
Thr Asp Ser Asp Lys Glu Arg Tyr Gln Gln Leu Glu Glu Ala Ser Ala  
130 135 140  
Ser Leu Arg Glu Arg Ile Arg His Leu Asp Asp Met Val His Cys Gln  
145 150 155 160  
Gln Lys Lys Val Lys Gln Met Val Glu Glu Ile Glu Ser Leu Lys Lys  
165 170 175  
Lys Val Gln Gln Lys Gln Leu Leu Ile Leu Gln Leu Leu Glu Lys Ile  
180 185 190  
Ser Phe Leu Glu Gly Glu Asn Asn Glu Leu Gln Ser Arg Leu Asp Tyr  
195 200 205  
Leu Thr Glu Thr Gln Ala Lys Thr Glu Val Glu Thr Arg Glu Ile Gly  
210 215 220  
Val Gly Cys Asp Leu Leu Pro Ser Pro Thr Gly Arg Thr Arg Glu Ile  
225 230 235 240  
Val Met Pro Ser Arg Asn Tyr Thr Pro Tyr Thr Arg Val Leu Glu Leu  
245 250 255  
Ser Ser Lys Lys Thr Leu Thr  
260

<210> 4419  
<211> 369  
<212> DNA  
<213> Homo sapiens

<400> 4419  
ngaattcctt gtatcgaaag tgccagaata cataactatattt attatgtatt tattctaaga  
60  
cagggtcttg ctctgntcac ccaggctgga gtgcagtggt gcgatcttgg ctcaactgcaa  
120

cctccgcctc cccagctcaa gcaactctcc tgccccagcc acccaagtnn aaattacagg  
 180  
 cccgtgccac cacacccggc caatttctgt attttttagta gagacggggg ttcaccatat  
 240  
 tggccaggac ggtctcaaac tcctggcccc atgtgatcct cccaccttgg cctcccaagg  
 300  
 tgctgggtatt acaggcgtga gccaccactg cgcttgacca gattttgctc ttttttgagc  
 360  
 agtctcagn  
 369

<210> 4420  
 <211> 91  
 <212> PRT  
 <213> Homo sapiens

<400> 4420  
 Xaa Ile Pro Cys Ile Glu Ser Ala Arg Ile His Thr Ile Tyr Tyr Val  
 1 5 10 15  
 Phe Ile Leu Arg Gln Gly Leu Ala Leu Xaa Thr Gln Ala Gly Val Gln  
 20 25 30  
 Trp Cys Asp Leu Gly Ser Leu Gln Pro Pro Pro Pro Gln Leu Lys Gln  
 35 40 45  
 Leu Ser Cys Pro Ser His Pro Ser Xaa Asn Tyr Arg Pro Val Pro Pro  
 50 55 60  
 His Pro Ala Asn Phe Cys Ile Phe Ser Arg Asp Gly Val Ser Pro Tyr  
 65 70 75 80  
 Trp Pro Gly Arg Ser Gln Thr Pro Gly Pro Met  
 85 90

<210> 4421  
 <211> 1356  
 <212> DNA  
 <213> Homo sapiens

<400> 4421  
 nctggcagag tgtgagggaa gaggcgctaa tccctttccc atctggcctg gcctctcggg  
 60  
 tgtggacacc aaatcccgca ggggttgctg tagctatgcc cgtggggcatc cttgccctgg  
 120  
 ctggggtgtg ctagagagag gaaagctgga ggaggagagc tgagctgggtg gttaccccat  
 180  
 gccaggaggg ccaaggcaag aagcctgcag cccagagat actgaccctg tcccctgccc  
 240  
 tccagggcac aactgaacta acggaatggc ttaatcagat agctcgagaa ctgccactac  
 300  
 cactccctcc ctgccactc ctcccaaagt ccacctgttc ccgcaagagt cccacctcac  
 360  
 aagcaaccac cagaggctga tacaaatggc cgctgtatgt ttgctaaagt gacagtgaca  
 420  
 cagataaggc aaagagctga ggggcaggac acatcagatg ggaaggggga gaccgtgcaa  
 480  
 aatggcagtc taacagaaaa tcatccttgt accaacagcc ccttccctcc caagttaggt  
 540

gagcccttgg gccagtgtat gggcagaaaa gcagatttgt gtccttcaga agggaaatgt  
 600  
 aaaaaggtga aagctctagt tgaagggcag tgagaggggc tggagtggga gagaaggtct  
 660  
 ctccctggccg gtggtctggg tgcagcaagg gcactctgag aaggcagaat ggaaacgcag  
 720  
 ggctggaggg gcattgggtac aggtttgggg gctctttcca gcctctacta tgttgccccc  
 780  
 ttccccaag cccttacagg ggcagaagca cattccccgt gaccctgagt ctggcctcat  
 840  
 ttgggaagtc ttctggggtg tatggatgcc tgtgtgtgtg agtgagatgg gtggggggcc  
 900  
 acggctatct ggctctagca cactcatggg agaccagctc tgggaacaac aggatggggg  
 960  
 gctgggatgg gggtttaaga ggtctctgct agatatctct gaactgacct cccaggtgc  
 1020  
 ccaacctggc ctggggaaga gagggcctag ggcagcgggg atggaaaccc ttgcctgcag  
 1080  
 cataggtcca ggctcatgg ccctacacct tgacctcttg actttgttgc cctggcctta  
 1140  
 agtacaaga ttctcactg cgtgctaaga aaacagatcc cgggccgggc ccggttgctc  
 1200  
 acacctataa tcccagcact ttggaaggct gaggcgggtg aatcacctga gatcaggagt  
 1260  
 tcgagaccag cctggccaac atggcaaac cctgtctcta ctaaaaacac aaaaatttgc  
 1320  
 cgggcatggg ggcagatgcc tgtaatccca gctact  
 1356

<210> 4422  
 <211> 58  
 <212> PRT  
 <213> Homo sapiens

<400> 4422  
 Gly Arg Ala Arg Leu Leu Thr Pro Ile Ile Pro Ala Leu Trp Lys Ala  
 1 5 10 15  
 Glu Ala Gly Glu Ser Pro Glu Ile Arg Ser Ser Arg Pro Ala Trp Pro  
 20 25 30  
 Thr Trp Gln Asn Pro Val Ser Thr Lys Asn Thr Lys Ile Cys Arg Ala  
 35 40 45  
 Trp Trp Gln Met Pro Val Ile Pro Ala Thr  
 50 55

<210> 4423  
 <211> 2673  
 <212> DNA  
 <213> Homo sapiens

<400> 4423  
 tccggaagtg gcttctgcga caacatgctt gcggacctcg gcttaatcgg aaccataggc  
 60  
 gaggatgacg aggtgccggt ggagcccgag tctgactccg gggacgagga agaggagggg  
 120

cccatgtgctc tgggcagacg acaaaaagct ttggggaaga accgcagtgc tgatttcaac  
180  
cctgatttcg ttttactga gaaggagggg acgtacgatg gcagctgggc cctggctgat  
240  
gtcatgagcc aactcaagaa gaagagggca gccactacat tagatgagaa gattgagaaa  
300  
gttcgaaaaga aaaggaaaac agaggataaa gaagccaagt ctgggaagtt ggaaaaggag  
360  
aaagaagcaa aggaaggctc tgaaccaagg gagcaggaag accttcaaga gaatgatgag  
420  
gaaggctcag aagatgaagc ctcgagact gactactcat cagctgatga gaacatcctc  
480  
accaaagcag atacactcaa agtaaaggat cggaagaaga agaagaagaa aggacaggaa  
540  
gcaggaggat tttttgaaga tgcattctcag tacgatgaaa acctctcgtt ccaggacatg  
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780  
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840  
caggtgcact ctgtcaccag acagctggcc cagttctgca acatcaccac ctgcctggct  
900  
gtgggcggct tggatgtgaa gtctcaggaa gcagctcttc gggcagcgcc tgacatcctc  
960  
atcgccaccc caggccggct catcgatcac ctccacaact gcccttcctt ccacctgagc  
1020  
agcatcgagg tgctcatcct ggacgaggct gacaggatgc tggatgagta ctttgaggag  
1080  
cagatgaagg agatcatccg aatgtgttcc caccaccgcc agaccatgct cttctcggcc  
1140  
accatgacag acgaggtgaa agatctggct tctgtctcct tgaagaatcc tgtccggata  
1200  
tttgtgaaca gcaacacaga tgtggctccc ttctgcggc aggagtcat ccgcatccgg  
1260  
cctaactcgtg aaggagaccg ggaagccatc gtggcagctt tgttgacgag gaccttact  
1320  
gaccatgtga tgctgttcac gcaaaccaag aagcaggccc accgcatgca catcctcctg  
1380  
gggctcatgg ggctgcaggt gggtagctc catggcaact tgtcacagac gcagcggctg  
1440  
gaggccctcc ggcgttttaa ggatgaacag attgacatcc tcgtggccac tgatgtggca  
1500  
gcccgaggac ttgacattga gggggcctaaa acggtaataa acttcacaaat gcctaatacc  
1560  
atcaaacatt atgtccaccg ggtggggcga acagcacgtg ctggcagggc tgggcgctca  
1620  
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<211> 768

<212> PRT

<213> Homo sapiens

<400> 4424

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| Ser | Gly | Ser | Gly | Phe | Cys | Asp | Asn | Met | Leu | Ala | Asp | Leu | Gly | Leu | Ile |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Thr | Ile | Gly | Glu | Asp | Asp | Glu | Val | Pro | Val | Glu | Pro | Glu | Ser | Asp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Gly | Asp | Glu | Glu | Glu | Glu | Gly | Pro | Ile | Val | Leu | Gly | Arg | Arg | Gln |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Lys | Ala | Leu | Gly | Lys | Asn | Arg | Ser | Ala | Asp | Phe | Asn | Pro | Asp | Phe | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Phe | Thr | Glu | Lys | Glu | Gly | Thr | Tyr | Asp | Gly | Ser | Trp | Ala | Leu | Ala | Asp |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Val | Met | Ser | Gln | Leu | Lys | Lys | Lys | Arg | Ala | Ala | Thr | Thr | Leu | Asp | Glu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Lys | Ile | Glu | Lys | Val | Arg | Lys | Lys | Arg | Lys | Thr | Glu | Asp | Lys | Glu | Ala |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Lys | Ser | Gly | Lys | Leu | Glu | Lys | Glu | Lys | Glu | Ala | Lys | Glu | Gly | Ser | Glu |



|                         |                     |                         |
|-------------------------|---------------------|-------------------------|
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| Asp Glu Ala Ser Glu Thr | Asp Tyr Ser Ser Ala | Asp Glu Asn Ile Leu     |
| 145                     | 150                 | 155                     |
| Thr Lys Ala Asp Thr     | Leu Lys Val Lys Asp | Arg Lys Lys Lys Lys Lys |
| 165                     | 170                 | 175                     |
| Lys Gly Gln Glu Ala Gly | Gly Phe Phe Glu Asp | Ala Ser Gln Tyr Asp     |
| 180                     | 185                 | 190                     |
| Glu Asn Leu Ser Phe Gln | Asp Met Asn Leu Ser | Arg Pro Leu Leu Lys     |
| 195                     | 200                 | 205                     |
| Ala Ile Thr Ala Met Gly | Phe Lys Gln Pro Thr | Pro Ile Gln Lys Ala     |
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| Cys Ile Pro Val Gly Leu | Leu Gly Lys Asp Ile | Cys Ala Cys Ala Ala     |
| 225                     | 230                 | 235                     |
| Thr Gly Thr Gly Lys Thr | Ala Ala Phe Ala Leu | Pro Val Leu Glu Arg     |
| 245                     | 250                 | 255                     |
| Leu Ile Tyr Lys Pro Arg | Gln Ala Pro Val Thr | Arg Val Leu Val Leu     |
| 260                     | 265                 | 270                     |
| Val Pro Thr Arg Glu Leu | Gly Ile Gln Val His | Ser Val Thr Arg Gln     |
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| Leu Ala Gln Phe Cys Asn | Ile Thr Thr Cys Leu | Ala Val Gly Gly Leu     |
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| Asp Val Lys Ser Gln Glu | Ala Ala Leu Arg Ala | Ala Pro Asp Ile Leu     |
| 305                     | 310                 | 315                     |
| Ile Ala Thr Pro Gly Arg | Leu Ile Asp His Leu | His Asn Cys Pro Ser     |
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| Phe His Leu Ser Ser Ile | Glu Val Leu Ile Leu | Asp Glu Ala Asp Arg     |
| 340                     | 345                 | 350                     |
| Met Leu Asp Glu Tyr Phe | Glu Glu Gln Met Lys | Glu Ile Ile Arg Met     |
| 355                     | 360                 | 365                     |
| Cys Ser His His Arg Gln | Thr Met Leu Phe Ser | Ala Thr Met Thr Asp     |
| 370                     | 375                 | 380                     |
| Glu Val Lys Asp Leu Ala | Ser Val Ser Leu Lys | Asn Pro Val Arg Ile     |
| 385                     | 390                 | 395                     |
| Phe Val Asn Ser Asn Thr | Asp Val Ala Pro Phe | Leu Arg Gln Glu Phe     |
| 405                     | 410                 | 415                     |
| Ile Arg Ile Arg Pro Asn | Arg Glu Gly Asp Arg | Glu Ala Ile Val Ala     |
| 420                     | 425                 | 430                     |
| Ala Leu Leu Thr Arg Thr | Phe Thr Asp His Val | Met Leu Phe Thr Gln     |
| 435                     | 440                 | 445                     |
| Thr Lys Lys Gln Ala His | Arg Met His Ile Leu | Leu Gly Leu Met Gly     |
| 450                     | 455                 | 460                     |
| Leu Gln Val Gly Glu Leu | His Gly Asn Leu Ser | Gln Thr Gln Arg Leu     |
| 465                     | 470                 | 475                     |
| Glu Ala Leu Arg Arg Phe | Lys Asp Glu Gln Ile | Asp Ile Leu Val Ala     |
| 485                     | 490                 | 495                     |
| Thr Asp Val Ala Ala Arg | Gly Leu Asp Ile Glu | Gly Val Lys Thr Val     |
| 500                     | 505                 | 510                     |
| Ile Asn Phe Thr Met Pro | Asn Thr Ile Lys His | Tyr Val His Arg Val     |
| 515                     | 520                 | 525                     |
| Gly Arg Thr Ala Arg Ala | Gly Arg Ala Gly Arg | Ser Val Ser Leu Val     |
| 530                     | 535                 | 540                     |
| Gly Glu Asp Glu Arg Lys | Met Leu Lys Glu Ile | Val Lys Ala Ala Lys     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 545 |     | 550 |     | 555 |     | 560 |     |     |     |     |     |     |     |     |     |
| Ala | Pro | Val | Lys | Ala | Arg | Ile | Leu | Pro | Gln | Asp | Val | Ile | Leu | Lys | Phe |
|     |     | 565 |     | 570 |     | 575 |     |     |     |     |     |     |     |     |     |
| Arg | Asp | Lys | Ile | Glu | Lys | Met | Glu | Lys | Asp | Val | Tyr | Ala | Val | Leu | Gln |
|     |     | 580 |     | 585 |     | 590 |     |     |     |     |     |     |     |     |     |
| Leu | Glu | Ala | Glu | Glu | Lys | Glu | Met | Gln | Gln | Ser | Glu | Ala | Gln | Ile | Asn |
|     |     | 595 |     | 600 |     | 605 |     |     |     |     |     |     |     |     |     |
| Thr | Ala | Lys | Arg | Leu | Leu | Glu | Lys | Gly | Lys | Glu | Ala | Val | Val | Gln | Glu |
|     |     | 610 |     | 615 |     | 620 |     |     |     |     |     |     |     |     |     |
| Pro | Glu | Arg | Ser | Trp | Phe | Gln | Thr | Lys | Glu | Glu | Arg | Lys | Lys | Glu | Lys |
|     |     | 625 |     | 630 |     | 635 |     |     |     |     |     |     |     |     |     |
| Ile | Ala | Lys | Ala | Leu | Gln | Glu | Phe | Asp | Leu | Ala | Leu | Arg | Gly | Lys | Lys |
|     |     | 645 |     | 650 |     | 655 |     |     |     |     |     |     |     |     |     |
| Lys | Arg | Lys | Lys | Phe | Met | Lys | Asp | Ala | Lys | Lys | Lys | Gly | Glu | Met | Thr |
|     |     | 660 |     | 665 |     | 670 |     |     |     |     |     |     |     |     |     |
| Ala | Glu | Glu | Arg | Ser | Gln | Phe | Glu | Ile | Leu | Lys | Ala | Gln | Met | Phe | Ala |
|     |     | 675 |     | 680 |     | 685 |     |     |     |     |     |     |     |     |     |
| Glu | Arg | Leu | Ala | Lys | Arg | Asn | Arg | Arg | Ala | Lys | Arg | Ala | Arg | Ala | Met |
|     |     | 690 |     | 695 |     | 700 |     |     |     |     |     |     |     |     |     |
| Pro | Glu | Glu | Glu | Pro | Val | Arg | Gly | Pro | Ala | Lys | Lys | Gln | Lys | Gln | Gly |
|     |     | 705 |     | 710 |     | 715 |     |     |     |     |     |     |     |     |     |
| Lys | Lys | Ser | Val | Phe | Asp | Glu | Glu | Leu | Thr | Asn | Thr | Ser | Lys | Lys | Ala |
|     |     | 725 |     | 730 |     | 735 |     |     |     |     |     |     |     |     |     |
| Leu | Lys | Gln | Tyr | Arg | Ala | Gly | Pro | Ser | Phe | Glu | Glu | Arg | Lys | Gln | Leu |
|     |     | 740 |     | 745 |     | 750 |     |     |     |     |     |     |     |     |     |
| Gly | Leu | Pro | His | Gln | Arg | Arg | Gly | Gly | Asn | Phe | Lys | Ser | Lys | Ser | Arg |
|     |     | 755 |     | 760 |     | 765 |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4425

&lt;211&gt; 5199

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4425

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&lt;210&gt; 4426

&lt;211&gt; 1116

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4426

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| Ser Ala Glu Asn Asn Gly Asn Ala Asn Ile Leu Ile Ala Ala Asn Gly |     |     |     |
|   | 35  | 40  | 45  |
| Thr Lys Arg Lys Ala Ile Ala Ala Glu Asp Pro Ser Leu Asp Phe Arg |     |     |     |
|   | 50  | 55  | 60  |
| Asn Asn Pro Thr Lys Glu Asp Leu Gly Lys Leu Gln Pro Leu Val Ala |     |     |     |
| 65  | 70  | 75  | 80  |
| Ser Tyr Leu Cys Ser Asp Val Thr Ser Val Pro Ser Lys Glu Ser Leu |     |     |     |
|   | 85  | 90  | 95  |
| Lys Leu Gln Gly Val Phe Ser Lys Gln Thr Val Leu Lys Ser His Pro |     |     |     |
|   | 100 | 105 | 110 |
| Leu Leu Ser Gln Ser Tyr Glu Leu Arg Ala Glu Leu Leu Gly Arg Gln |     |     |     |
|   | 115 | 120 | 125 |
| Pro Val Leu Glu Phe Ser Leu Glu Asn Leu Arg Thr Met Asn Thr Ser |     |     |     |
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| Gly Gln Thr Ala Leu Pro Gln Ala Pro Val Asn Gly Leu Ala Lys Lys |     |     |     |
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| Leu Thr Lys Ser Ser Thr His Ser Asp His Asp Asn Ser Thr Ser Leu |     |     |     |
|   | 165 | 170 | 175 |
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|   | 260 | 265 | 270 |
| Ile Leu Phe Ser Ala Leu Asp Ser Asp Thr Arg Ile Thr Ala Leu Leu |     |     |     |
|   | 275 | 280 | 285 |
| Arg Arg Gln Ala Asp Ile Glu Ser Arg Ala Arg Arg Leu Gln Lys Arg |     |     |     |
|   | 290 | 295 | 300 |
| Leu Gln Val Val Gln Ala Lys Gln Val Glu Arg His Ile Gln His Gln |     |     |     |
| 305   | 310 | 315 | 320 |
| Leu Gly Gly Phe Leu Glu Lys Thr Leu Ser Lys Leu Pro Asn Leu Glu |     |     |     |
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| Ser Leu Arg Pro Arg Ser Gln Leu Met Leu Thr Arg Lys Ala Glu Ala |     |     |     |
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| Ala Leu Arg Lys Ala Ala Ser Glu Thr Thr Thr Ser Glu Gly Leu Ser |     |     |     |
|   | 355 | 360 | 365 |
| Asn Phe Leu Lys Ser Asn Ser Ile Ser Glu Glu Leu Glu Arg Phe Thr |     |     |     |
|   | 370 | 375 | 380 |
| Ala Ser Gly Ile Ala Asn Leu Arg Cys Ser Glu Gln Ala Phe Asp Ser |     |     |     |
| 385   | 390 | 395 | 400 |
| Asp Val Thr Asp Ser Ser Ser Gly Gly Glu Ser Asp Ile Glu Glu Glu |     |     |     |
|   | 405 | 410 | 415 |
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| Met | Val | Ala | Cys | Arg | Ala | Ile | Gly | Ile | Leu | Ser | Arg | Phe | Ser | Ala | Phe |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Arg | Ile | Leu | Arg | Ser | Arg | Gly | Tyr | Ile | Cys | Arg | Asn | Phe | Thr | Gly | Ser |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |
| Ser | Ala | Leu | Leu | Thr | Arg | Thr | His | Ile | Asn | Tyr | Gly | Val | Lys | Gly | Asp |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Val | Ala | Val | Val | Arg | Ile | Asn | Ser | Pro | Asn | Ser | Lys | Val | Asn | Thr | Leu |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Ser | Lys | Glu | Leu | His | Ser | Glu | Phe | Ser | Glu | Val | Met | Asn | Glu | Ile | Trp |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     | 80  |     |     |     |
| Ala | Ser | Asp | Gln | Ile | Arg | Ser | Ala | Val | Leu | Ile | Ser | Ser | Lys | Pro | Gly |
|     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |     |
| Cys | Phe | Ile | Ala | Gly | Ala | Asp | Ile | Asn | Met | Leu | Ala | Ala | Cys | Lys | Thr |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Leu | Gln | Glu | Val | Thr | Gln | Leu | Ser | Gln | Glu | Ala | Gln | Arg | Ile | Val | Glu |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Lys | Leu | Glu | Lys | Ser | Thr | Lys | Pro | Ile | Val | Ala | Ala | Ile | Asn | Gly | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     | 140 |     |     |     |     |     |
| Cys | Leu | Gly | Gly | Gly | Leu | Glu | Val | Ala | Ile | Ser | Cys | Gln | Tyr | Arg | Ile |
| 145 |     |     |     |     | 150 |     |     | 155 |     |     |     | 160 |     |     |     |
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| Ala | Asp | Arg | Ala | Lys | Lys | Met | Gly | Leu | Val | Asp | Gln | Leu | Val | Glu | Pro |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
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| Leu | Gly | Pro | Gly | Leu | Lys | Pro | Pro | Glu | Glu | Arg | Thr | Ile | Glu | Tyr | Leu |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
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| Glu | Glu | Val | Ala | Ile | Thr | Phe | Ala | Lys | Gly | Leu | Ala | Asp | Lys | Lys | Ile |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
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| Lys | Val | Arg | Lys | Gln | Thr | Lys | Gly | Leu | Tyr | Pro | Ala | Pro | Leu | Lys | Ile |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
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| Ile | Asp | Val | Val | Lys | Thr | Gly | Ile | Glu | Gln | Gly | Ser | Asp | Ala | Gly | Tyr |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
| 305 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 310 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     | 315 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     | 320 |
| Leu | Cys | Glu | Ser | Gln | Lys | Phe | Gly | Glu | Leu | Val | Met | Thr | Lys | Glu | Ser |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 325 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 330 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 335 |     |
| Lys | Ala | Leu | Met | Gly | Leu | Tyr | His | Gly | Gln | Val | Leu | Cys | Lys | Lys | Asn |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 340 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 345 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 350 |     |
| Lys | Phe | Gly | Ala | Pro | Gln | Lys | Asp | Val | Lys | His | Leu | Ala | Ile | Leu | Gly |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 355 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 360 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 365 |     |
| Ala | Gly | Leu | Met | Gly | Ala | Gly | Ile | Ala | Gln | Val | Ser | Val | Asp | Lys | Gly |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 370 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 375 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 380 |     |
| Leu | Lys | Thr | Ile | Leu | Lys | Asp | Ala | Thr | Leu | Thr | Ala | Leu | Asp | Arg | Gly |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
| 385 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 390 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     | 395 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     | 400 |
| Gln | Gln | Gln | Val | Phe | Lys | Gly | Leu | Asn | Asp | Lys | Val | Lys | Lys | Lys | Ala |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 405 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 410 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 415 |     |
| Leu | Thr | Ser | Phe | Glu | Arg | Asp | Ser | Ile | Phe | Ser | Asn | Leu | Thr | Gly | Gln |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 420 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 425 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 430 |     |
| Leu | Asp | Tyr | Gln | Gly | Phe | Glu | Lys | Ala | Asp | Met | Val | Ile | Glu | Ala | Val |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 435 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 440 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 445 |     |
| Phe | Glu | Asp | Leu | Ser | Leu | Lys | His | Arg | Val | Leu | Lys | Glu | Val | Glu | Ala |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 450 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 455 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 460 |     |
| Val | Ile | Pro | Asp | His | Cys | Ile | Phe | Ala | Ser | Asn | Thr | Ser | Ala | Leu | Pro |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 465 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 470 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 475 |     |
| Ile | Ser | Glu | Ile | Ala | Ala | Val | Ser | Lys | Arg | Pro | Glu | Lys | Val | Ile | Gly |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 485 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 490 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 495 |     |
| Met | His | Tyr | Phe | Ser | Pro | Val | Asp | Lys | Met | Gln | Leu | Leu | Glu | Ile | Ile |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 500 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 505 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 510 |     |
| Thr | Thr | Glu | Lys | Thr | Ser | Lys | Asp | Thr | Ser | Ala | Ser | Ala | Val | Ala | Val |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 515 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 520 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 525 |     |
| Gly | Leu | Lys | Gln | Gly | Lys | Val | Ile | Ile | Val | Val | Lys | Asp | Gly | Pro | Gly |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 530 |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 535 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 540 |     |
| Phe | Tyr | Thr | Thr | Arg | Cys | Leu | Ala | Pro | Met | Met | Ser | Glu | Val | Ile | Arg |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |
| 545 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 550 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     | 555 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     | 560 |
| Ile | Leu | Gln | Glu | Gly | Val | Asp | Pro | Lys | Lys | Leu |     |     |     |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |     |

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<210> 4429
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<212> DNA
<213> Homo sapiens
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120
ctgcttgctc caactggctc catctctccg ttaccgggtga ggcaggcaca gtgctgcagt
180
ggcagaatgg aagtaccag gctgacttgc tctcagccag acacgacctc ttctctgagg
240
agggtgatgc caataaatgg aactccaata ggtaggcttc gctctgccct tccacaagtg
300
aacacacgcc gtgagtcctt aaatcgccag gctccgcagc ctcgcagaaa gcctagtttc
360
cagacggtag gtatccatt catcccttgg catcggaac caaagggagt gcagacagat
420
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480
cgcgccttc ctccgaggcc tccaccaccc gcggactcac cactatgcga gctgaaccac
540
ctgggtgcga tgtgcagagg tagagcatcc gccagcgagg ttctgggagg cccggttacc
600
gttccccgtt tttatggtng accgccgccg gtctcctggt aaccattgcc atgggcatag
660
gtggagtcgg acgcagaccc tccgccgccg ggcgccacta ccacctgag gtgtccaaag
720
ccgccagcgt catcaaccag gccctgtcca tgctgaggt cagcatcgcg cacaccaacg
780

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acacgccctt ctctctctct ctctctctct ctctctctct cteccccgtc tnnccctccc  
 840  
 gagttctccg gctctcgcgg ccggcggggc cgggcggcga acgaacgagc gagcgaacga  
 900  
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 agggaagcgc gcggcgggcg c  
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<210> 4430  
 <211> 151  
 <212> PRT  
 <213> Homo sapiens

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 Ser Ala Leu Pro Gln Val Asn Thr Arg Arg Glu Ser Leu Asn Arg Gln  
 35 40 45  
 Ala Pro Gln Pro Arg Arg Lys Pro Ser Phe Gln Thr Val Gly Ile Pro  
 50 55 60  
 Phe Ile Pro Trp His Arg Glu Pro Lys Gly Met Gln Thr Asp Pro Gly  
 65 70 75 80  
 Arg Ala Leu His Ser Gln Thr Leu Ala Arg Thr Arg Arg Leu Gly Ala  
 85 90 95  
 Pro Arg Arg Ala Leu Pro Pro Arg Pro Pro Pro Pro Ala Asp Ser Pro  
 100 105 110  
 Leu Cys Glu Leu Asn His Leu Gly Ala Met Cys Arg Gly Arg Ala Ser  
 115 120 125  
 Ala Ser Glu Val Leu Gly Gly Pro Val Thr Ala Ser Arg Phe Tyr Gly  
 130 135 140  
 Xaa Pro Pro Pro Val Ser Trp  
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 120  
 cagaaggtca ggctggcttg gggcctgtgc ttctgtcag accccatcag gtagggctgc  
 180  
 ccccgggacc ctggccggcc tgcaggggtg tctgtgggag gctccaggcc ctctgtgca  
 240  
 ggtccaagcg cagccaatcc tcaactcaagg ccttcctgc cctttccttc cgccacaaat  
 300  
 cccaaacaaa cgtgctgtgg tccctgcccg gtgtccacag tgccagcccc accctccag  
 360

cccgttgccc atccctgcgg ggctgcagcc atccctctcc acagcaagga tgacgtggaa  
 420  
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<210> 4432  
 <211> 57  
 <212> PRT  
 <213> Homo sapiens

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 Ala Ile Ala Ala Leu Ser Phe Trp Gln Lys Val Arg Leu Ala Trp Gly  
 35 40 45  
 Leu Cys Phe Leu Ser Asp Pro Ile Arg  
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<210> 4433  
 <211> 447  
 <212> DNA  
 <213> Homo sapiens

<400> 4433  
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 120  
 ctccgcttcc tggacatgag ccagaaccag ttccagtacc tgccagacgg cttcctgagg  
 180  
 aaaatgcctt ccctctccca cctgaacctc caccagaatt gcctgatgac gcttcacatt  
 240  
 cgggagcacg agccccccgg agcgctcacc gagctggacc tgagccacaa ccagctgtcg  
 300  
 gagctgcacc tggctccggg gctggccagc tgctgggca gcctgcgctt gttcaacctg  
 360  
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 420  
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<210> 4434  
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 <212> PRT  
 <213> Homo sapiens

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120
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180
gaggggactg tgaaactcta catctgtgag ctggcactgg ccctggagta tcttcagagg
240
taccacatca tccacagaga catcaagcca gacaatatcc tgctggatga acacggacat
300
gttcacatta cagacttcaa catagcgacg gtagtgaaag gagcagaaaag ggcttcctcc
360
atggctggca ccaagcccta catggctcca gaagtattcc aggtgtacat ggacagaggc
420
cccggatact cgtaccctgt cgactggtgg tccctgggca tcacagccta tgagctgctg
480
cggggctgga ggccgtacga aatccactcg gtcacgcca tcgatgaaat cctcaacatg
540
ttcaaggtgg agcgtgtcca ctactcctcc acgtggtgca aggggatggt ggccctgcta
600
aggaagctcc tgaccaagga tcctgagagc cgcggtgtcca gccttcatga catacagagc
660
gtgccctact tggccgacat gaactgggac gcggtgttca agaaggcact gatgcccggc
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780
cta
783

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<210> 4436



<211> 261  
 <212> PRT  
 <213> Homo sapiens

<400> 4436

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Arg | Asp | Glu | Val | Arg | Asn | Val | Phe | Arg | Glu | Leu | Gln | Ile | Met |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Gly | Leu | Glu | His | Pro | Phe | Val | Val | Asn | Leu | Trp | Tyr | Ser | Phe | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asp | Glu | Glu | Asp | Met | Phe | Met | Val | Val | Asp | Leu | Leu | Leu | Gly | Gly | Asp |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Arg | Tyr | His | Leu | Gln | Gln | Asn | Val | His | Phe | Thr | Glu | Gly | Thr | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Lys | Leu | Tyr | Ile | Cys | Glu | Leu | Ala | Leu | Ala | Leu | Glu | Tyr | Leu | Gln | Arg |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Tyr | His | Ile | Ile | His | Arg | Asp | Ile | Lys | Pro | Asp | Asn | Ile | Leu | Leu | Asp |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Glu | His | Gly | His | Val | His | Ile | Thr | Asp | Phe | Asn | Ile | Ala | Thr | Val | Val |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Lys | Gly | Ala | Glu | Arg | Ala | Ser | Ser | Met | Ala | Gly | Thr | Lys | Pro | Tyr | Met |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ala | Pro | Glu | Val | Phe | Gln | Val | Tyr | Met | Asp | Arg | Gly | Pro | Gly | Tyr | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Tyr | Pro | Val | Asp | Trp | Trp | Ser | Leu | Gly | Ile | Thr | Ala | Tyr | Glu | Leu | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Arg | Gly | Trp | Arg | Pro | Tyr | Glu | Ile | His | Ser | Val | Thr | Pro | Ile | Asp | Glu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Ile | Leu | Asn | Met | Phe | Lys | Val | Glu | Arg | Val | His | Tyr | Ser | Ser | Thr | Trp |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Cys | Lys | Gly | Met | Val | Ala | Leu | Leu | Arg | Lys | Leu | Leu | Thr | Lys | Asp | Pro |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Glu | Ser | Arg | Val | Ser | Ser | Leu | His | Asp | Ile | Gln | Ser | Val | Pro | Tyr | Leu |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ala | Asp | Met | Asn | Trp | Asp | Ala | Val | Phe | Lys | Lys | Ala | Leu | Met | Pro | Gly |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     | 240 |     |
| Phe | Val | Pro | Asn | Lys | Gly | Arg | Leu | Asn | Cys | Asp | Pro | Thr | Phe | Glu | Leu |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |     |
| Glu | Glu | Met | Ile | Leu |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     | 260 |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 4437  
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 <212> DNA  
 <213> Homo sapiens

<400> 4437

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 120  
 gtgtccatgc tgaagatgga cgagagcacg ctgctgcggg aggcccagga gctcagcctg  
 180  
 gagaagctgc agcaggccgt gaggcagaac gggctcatgt cggggctgat gcagatgctg  
 240

ctgctgaagg tgtctgcaca catcaccgag cagctgggca tggccccagg tggcgagttc  
 300  
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 420  
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 480  
 aagcagaagg acctactgga gcagatgatg gccgagatga ttggcgagtt cccagacctg  
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 <212> PRT  
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 35 40 45  
 Ser Thr Leu Leu Arg Glu Ala Gln Glu Leu Ser Leu Glu Lys Leu Gln  
 50 55 60  
 Gln Ala Val Arg Gln Asn Gly Leu Met Ser Gly Leu Met Gln Met Leu  
 65 70 75 80  
 Leu Leu Lys Val Ser Ala His Ile Thr Glu Gln Leu Gly Met Ala Pro  
 85 90 95  
 Gly Gly Glu Phe Arg Glu Ala Phe Lys Glu Ala Ser Lys Val Pro Phe  
 100 105 110  
 Cys Lys Phe His Leu Gly Asp Arg Pro Ile Pro Val Thr Phe Lys Arg  
 115 120 125  
 Ala Ile Ala Ala Leu Ser Phe Trp Gln Lys Val Arg Leu Ala Trp Gly  
 130 135 140  
 Leu Cys Phe Leu Ser Asp Pro Ile Ser Lys Asp Asp Val Glu Arg Cys  
 145 150 155 160  
 Lys Gln Lys Asp Leu Leu Glu Gln Met Met Ala Glu Met Ile Gly Glu  
 165 170 175  
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 <212> DNA  
 <213> Homo sapiens

<400> 4439

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 <212> PRT  
 <213> Homo sapiens

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 Arg Ile Gly Arg Phe Gly Tyr Gly Tyr Gly Pro Tyr Gln Pro Val Pro  
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 <211> 517  
 <212> PRT  
 <213> Homo sapiens

<400> 4442  
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 Trp Lys Glu Lys Val Leu Trp Ala Leu Leu Ala Val Leu Leu Ala Ser  
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 Trp Arg Leu Trp Ala Ile Lys Asp Phe Gln Glu Cys Thr Trp Gln Val  
   50                  55                  60  
 Val Leu Asn Glu Phe Lys Arg Val Gly Glu Ser Gly Val Ser Asp Ser  
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 Phe Phe Glu Gln Glu Pro Val Asp Thr Val Ser Ser Leu Phe His Met  
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 Leu Val Asp Ser Pro Ile Asp Pro Ser Glu Lys Tyr Leu Gly Phe Pro  
                   100                  105                  110  
 Tyr Tyr Leu Lys Ile Asn Tyr Ser Cys Glu Glu Lys Pro Ser Glu Asp  
           115                  120                  125  
 Leu Val Arg Met Gly His Leu Thr Gly Leu Lys Pro Leu Val Leu Val  
           130                  135                  140  
 Thr Phe Gln Ser Pro Val Asn Phe Tyr Arg Trp Lys Ile Glu Gln Leu  
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 Gln Ile Gln Met Glu Ala Ala Pro Phe Arg Ser Lys Gly Gly Pro Gly  
                   165                  170                  175  
 Gly Gly Gly Arg Asp Arg Asn Leu Ala Gly Met Asn Ile Asn Gly Phe  
                   180                  185                  190  
 Leu Lys Arg Asp Arg Asp Asn Asn Ile Gln Phe Thr Val Gly Glu Glu  
           195                  200                  205  
 Leu Phe Asn Leu Met Pro Gln Tyr Phe Val Gly Val Ser Ser Arg Pro  
           210                  215                  220  
 Leu Trp His Thr Val Asp Gln Ser Pro Val Leu Ile Leu Gly Gly Ile  
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 Pro Asn Glu Lys Tyr Val Leu Met Thr Asp Thr Ser Phe Lys Asp Phe  
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 Ser Leu Val Glu Val Asn Gly Val Gly Gln Met Leu Ser Ile Asp Ser  
                   260                  265                  270  
 Cys Trp Val Gly Ser Phe Tyr Cys Pro His Ser Gly Phe Thr Ala Thr  
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 Ile Tyr Asp Thr Ile Ala Thr Glu Ser Thr Leu Phe Ile Arg Gln Asn  
           290                  295                  300  
 Gln Leu Val Tyr Tyr Phe Thr Gly Thr Tyr Thr Thr Leu Tyr Glu Arg  
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 Asn Arg Gly Ser Gly Glu Cys Ala Val Ala Gly Pro Thr Pro Gly Glu

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
|     |     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |  |  |  |  |
| Gly | Thr | Leu | Val | Asn | Pro | Ser | Thr | Glu | Gly | Ser | Trp | Ile | Arg | Val | Leu |  |  |  |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |  |  |  |
| Ala | Ser | Glu | Cys | Ile | Lys | Lys | Leu | Cys | Pro | Val | Tyr | Phe | His | Ser | Asn |  |  |  |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |  |  |  |
| Gly | Ser | Glu | Tyr | Ile | Met | Ala | Leu | Thr | Thr | Gly | Lys | His | Glu | Gly | Tyr |  |  |  |  |
|     | 370 |     |     |     |     | 375 |     |     |     | 380 |     |     |     |     |     |  |  |  |  |
| Val | His | Phe | Gly | Thr | Ile | Arg | Val | Thr | Thr | Cys | Ser | Ile | Ile | Trp | Ser |  |  |  |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |  |  |  |
| Glu | Tyr | Ile | Ala | Gly | Glu | Tyr | Thr | Leu | Leu | Leu | Leu | Val | Glu | Ser | Gly |  |  |  |  |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |     |  |  |  |  |
| Tyr | Gly | Asn | Ala | Ser | Lys | Arg | Phe | Gln | Val | Val | Ser | Tyr | Asn | Thr | Ala |  |  |  |  |
|     |     | 420 |     |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |  |  |  |
| Ser | Asp | Asp | Leu | Glu | Leu | Leu | Tyr | His | Ile | Pro | Glu | Phe | Ile | Pro | Glu |  |  |  |  |
|     | 435 |     |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |  |  |  |  |
| Ala | Arg | Gly | Leu | Glu | Phe | Leu | Met | Ile | Leu | Gly | Thr | Glu | Ser | Tyr | Thr |  |  |  |  |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |  |  |  |  |
| Ser | Thr | Ala | Met | Ala | Pro | Lys | Gly | Ile | Phe | Cys | Asn | Pro | Tyr | Asn | Asn |  |  |  |  |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |  |  |  |
| Leu | Ile | Phe | Ile | Trp | Gly | Asn | Phe | Leu | Leu | Gln | Arg | Ser | Gly | Thr | Ser |  |  |  |  |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |     |  |  |  |  |
| Trp | Arg | Ala | Ala | Thr | Gly | Ser | Thr | Ser | Cys | Ser | Leu | Pro | Arg | Ala | Gly |  |  |  |  |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |  |  |  |
| Arg | Cys | Thr | Ser | Ala |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |
|     |     | 515 |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |

&lt;210&gt; 4443

&lt;211&gt; 692

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4443

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<210> 4444  
<211> 108  
<212> PRT  
<213> Homo sapiens

<400> 4444  
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Lys Ala Gly Leu Gln Glu Val Arg Pro Ala Leu Gln Ala Thr Pro Val  
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Leu Gly Leu Leu Leu Ser Ser Ser Phe Leu Arg Val Thr Glu Pro Gly  
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Leu Pro Pro Cys Trp Thr His Gln Gln Ser Lys  
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<212> DNA  
<213> Homo sapiens

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720



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 <211> 140  
 <212> PRT  
 <213> Homo sapiens

<400> 4446  
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 Thr Pro Gly Leu Pro Ser Ser Ala Val Asn Asp Asp Leu Leu Leu Leu  
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 Pro Ser Ser Leu Pro Ser Val Thr Lys Gly Leu Pro Arg Cys Gln Leu  
 65 70 75 80  
 Trp Asn Glu Gly Cys Pro Trp Glu Val Met Ile Leu Arg Tyr Thr Gly  
 85 90 95  
 Ala Gln Gln Ile Ala Ser Ser Tyr Pro Gln Thr Val Phe Ala Cys Met  
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<210> 4447  
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 <212> DNA  
 <213> Homo sapiens

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<210> 4448

<211> 263

<212> PRT

<213> Homo sapiens

<400> 4448

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| Arg | Cys | Pro | Lys | Ser | Gly | Cys | Pro | Gly | Leu | Val | Gln | Arg | Ala | Ala |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Ser | Pro | Gly | Ser | Gln | Ala | Pro | Asp | Thr | Ala | Leu | Arg | Ala | Met |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  | Ala |
| Asp | Arg | Gly | Pro | Trp | Arg | Val | Gly | Val | Val | Gly | Tyr | Gly | Arg | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     | Gly |
| Gln | Ser | Leu | Val | Ser | Arg | Leu | Leu | Ala | Gln | Gly | Ser | Glu | Leu | Gly |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     | Leu |
| Glu | Leu | Val | Phe | Val | Trp | Asn | Arg | Asp | Pro | Gly | Arg | Met | Ala | Gly |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |
| Val | Pro | Pro | Ala | Leu | Gln | Leu | Glu | Asp | Leu | Thr | Thr | Leu | Glu | Glu |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |
| His | Pro | Asp | Leu | Val | Val | Glu | Val | Ala | His | Pro | Lys | Ile | Ile | His |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 | Glu |
| Ser | Gly | Val | Gln | Ile | Leu | Arg | His | Ala | Asn | Leu | Leu | Ser | Leu | Arg |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 | Val |
| Thr | Met | Ala | Thr | His | Pro | Asp | Gly | Phe | Arg | Leu | Glu | Gly | Pro | Leu |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     | Ala |
| Ala | Ala | His | Ser | Pro | Gly | Pro | Cys | Thr | Val | Leu | Tyr | Glu | Gly | Pro |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |
| Arg | Gly | Leu | Cys | Pro | Phe | Ala | Pro | Arg | Asn | Ser | Asn | Thr | Met | Ala |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |
| Ala | Ala | Leu | Ala | Ala | Pro | Ser | Leu | Gly | Phe | Asp | Gly | Val | Ile | Gly |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 | Val |
| Leu | Val | Ala | Asp | Thr | Ser | Leu | Thr | Asp | Met | His | Val | Val | Asp | Val |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     | Glu |
| Leu | Ser | Gly | Pro | Arg | Gly | Pro | Thr | Gly | Arg | Ser | Phe | Ala | Val | His |
|     |     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     | Thr |
| Arg | Arg | Glu | Asn | Pro | Ala | Glu | Pro | Gly | Ala | Val | Thr | Gly | Ser | Ala |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 225 |     | 230 |     | 235 |     | 240 |     |     |     |     |     |     |     |     |     |
| Val | Thr | Ala | Phe | Trp | Arg | Ser | Leu | Leu | Ala | Cys | Cys | Gln | Leu | Pro | Ser |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Arg | Pro | Gly | Ile | His | Leu | Cys |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 260 |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4449

&lt;211&gt; 1365

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4449

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1260

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 <212> PRT  
 <213> Homo sapiens

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 50 55 60  
 Ala Tyr Cys Phe Phe Leu Asn Pro Ala Arg Lys Thr Arg Pro Gln Ala  
 65 70 75 80  
 Pro Arg Leu Pro Glu Phe Ser Phe Glu Lys Arg Gln Val Val Glu Gly  
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 Ser Ser Ser Val Gly Pro Leu Pro Ser Gly Ser Val Leu Ser Ser Asp  
 100 105 110  
 Asn Gln Phe Asn Glu Glu Ser Leu Glu His Asp Val Leu Asp Asp Asn  
 115 120 125  
 Thr Glu Gln Thr Asp Asp Lys Ile Pro Ala Thr Glu Gln Thr Asn Gln  
 130 135 140  
 Val Ile Glu Lys Ala Ser Asp Ser Glu Glu Pro Glu Glu Lys Gln Glu  
 145 150 155 160  
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 Ala Glu

<210> 4451  
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 <213> Homo sapiens

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1637

&lt;210&gt; 4452

&lt;211&gt; 328

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4452

Met Gly Ala Ala Ala Ser Gln Cys Cys Val Ala Pro Ala Leu His Trp

|             |                     |                         |                     |
|-------------|---------------------|-------------------------|---------------------|
| 1           | 5                   | 10                      | 15                  |
| Arg Ala Val | Pro Thr Leu Thr     | Ala Thr Xaa Ser Leu Ala | Asp Leu Leu         |
|             | 20                  | 25                      | 30                  |
| Lys Tyr Asn | Phe Tyr Leu Pro     | Phe Phe Phe Gly Pro     | Ile Met Thr         |
|             | 35                  | 40                      | 45                  |
| Phe Asp Arg | Phe His Ala Gln Val | Ser Gln Val Glu Pro     | Val Arg Arg         |
|             | 50                  | 55                      | 60                  |
| Glu Gly Glu | Leu Trp His Ile     | Arg Ala Gln Ala Gly     | Leu Ser Val Val     |
|             | 65                  | 70                      | 75                  |
| Ala Ile Met | Ala Val Asp Ile     | Phe Phe His Phe Phe     | Tyr Ile Leu Thr     |
|             | 85                  | 90                      | 95                  |
| Ile Pro Ser | Asp Leu Lys Phe     | Ala Asn Arg Leu Pro     | Asp Ser Ala Leu     |
|             | 100                 | 105                     | 110                 |
| Ala Gly Leu | Ala Tyr Ser Asn     | Leu Val Tyr Asp         | Trp Val Lys Ala Ala |
|             | 115                 | 120                     | 125                 |
| Val Leu Phe | Gly Val Val Asn     | Thr Val Ala Cys         | Leu Asp His Leu Asp |
|             | 130                 | 135                     | 140                 |
| Pro Pro Gln | Pro Pro Lys Cys     | Ile Thr Ala Leu Tyr     | Val Phe Ala Glu     |
|             | 145                 | 150                     | 155                 |
| Thr His Phe | Asp Arg Gly Ile     | Asn Asp Trp Leu Cys     | Lys Tyr Val Tyr     |
|             | 165                 | 170                     | 175                 |
| Asn His Ile | Gly Gly Glu His     | Ser Ala Val Ile Pro     | Glu Leu Ala Ala     |
|             | 180                 | 185                     | 190                 |
| Thr Val Ala | Thr Phe Ala Ile     | Thr Thr Leu Trp         | Leu Gly Pro Cys Asp |
|             | 195                 | 200                     | 205                 |
| Ile Val Tyr | Leu Trp Ser Phe     | Leu Asn Cys Phe Gly     | Leu Asn Phe Glu     |
|             | 210                 | 215                     | 220                 |
| Leu Trp Met | Gln Lys Leu Ala     | Glu Trp Gly Pro Leu     | Ala Arg Ile Glu     |
|             | 225                 | 230                     | 235                 |
| Ala Ser Leu | Ser Val Gln Met     | Ser Arg Arg Val Arg     | Ala Leu Phe Gly     |
|             | 245                 | 250                     | 255                 |
| Ala Met Asn | Phe Trp Ala Ile     | Ile Met Tyr Asn Leu     | Val Ser Leu Asn     |
|             | 260                 | 265                     | 270                 |
| Ser Leu Lys | Phe Thr Glu Leu     | Val Ala Arg Arg Leu     | Leu Leu Thr Gly     |
|             | 275                 | 280                     | 285                 |
| Phe Pro Gln | Thr Thr Leu Ser     | Ile Leu Phe Val Thr     | Tyr Cys Gly Val     |
|             | 290                 | 295                     | 300                 |
| Gln Leu Val | Lys Glu Arg Glu     | Arg Thr Leu Ala Leu     | Glu Glu Glu Gln     |
|             | 305                 | 310                     | 315                 |
| Lys Gln Asp | Lys Glu Lys Pro     | Glu                     |                     |
|             | 325                 |                         |                     |

&lt;210&gt; 4453

&lt;211&gt; 685

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4453

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 685

&lt;210&gt; 4454

&lt;211&gt; 207

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4454

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ile | Ile | Leu | Val | Val | Thr | Leu | His | Thr | Cys | His | Pro | Val | Pro | Ser | 1   | 5   | 10  | 15  |
| Pro | Gly | Trp | His | Ile | Tyr | Thr | His | Ser | Gly | Ser | Glu | Arg | Leu | Val | Asn | 20  | 25  | 30  |     |
| Gln | Lys | Trp | Ala | Ala | Gly | Ala | Lys | Ala | Tyr | Leu | Asn | Lys | Gly | Ser | Lys | 35  | 40  | 45  |     |
| Gly | Pro | Leu | Ser | Leu | Gly | Ser | Ser | Ile | Gln | Pro | Leu | Ser | Gln | Gln | Arg | 50  | 55  | 60  |     |
| Gln | Asp | Cys | Gly | Pro | Leu | Cys | Phe | Leu | Asn | Arg | Ala | Gln | Gly | Ser | Gln | 65  | 70  | 75  | 80  |
| Gly | Met | Pro | Ser | Leu | Gln | His | Ser | Thr | Leu | Trp | Ser | Gln | Trp | Ser | Arg | 85  | 90  | 95  |     |
| Arg | Ser | Ser | Leu | Lys | Tyr | Tyr | Tyr | Arg | Gly | Glu | Arg | Pro | Ile | Leu | Ala | 100 | 105 | 110 |     |
| Met | Leu | Leu | Tyr | Leu | Pro | Arg | Pro | Lys | Thr | Val | Leu | Cys | Ser | Phe | Ser | 115 | 120 | 125 |     |
| Cys | Ser | Glu | Ile | Arg | Ser | Gln | Asn | Ser | Arg | Arg | His | Ser | Phe | Gly | Lys | 130 | 135 | 140 |     |
| Lys | Gly | His | Ala | Phe | Val | Leu | Tyr | Leu | Ile | Leu | Val | Ser | Glu | Ala | Leu | 145 | 150 | 155 | 160 |
| Ile | Pro | Val | Asp | Cys | Gly | Leu | Arg | Trp | Ser | Pro | Pro | Gln | Asp | Pro | Gln | 165 | 170 | 175 |     |
| Leu | Gln | Arg | Gln | Arg | Arg | Met | Lys | Glu | Glu | Gln | Pro | Pro | Gln | Asp | Leu | 180 | 185 | 190 |     |
| Leu | His | Trp | Glu | Pro | His | Pro | Thr | Phe | Ser | Val | Pro | Phe | Thr | Arg |     | 195 | 200 | 205 |     |

&lt;210&gt; 4455

&lt;211&gt; 882

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4455

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&lt;210&gt; 4456

&lt;211&gt; 261

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4456

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Asp | His | Asp | Ala | Ile | Lys | Leu | Phe | Ile | Gly | Gln | Ile | Pro | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Asn | Leu | Asp | Glu | Lys | Asp | Leu | Lys | Pro | Leu | Phe | Glu | Glu | Phe | Gly | Lys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ile | Tyr | Glu | Leu | Thr | Val | Leu | Lys | Asp | Arg | Phe | Thr | Gly | Met | His | Lys |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gly | Cys | Ala | Phe | Leu | Thr | Tyr | Cys | Glu | Arg | Glu | Ser | Ala | Leu | Lys | Ala |
|     |     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |
| Gln | Ser | Ala | Leu | His | Glu | Gln | Lys | Thr | Leu | Pro | Gly | Met | Asn | Arg | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ile | Gln | Val | Lys | Pro | Ala | Asp | Ser | Glu | Ser | Arg | Gly | Asp | Ser | Ser | Cys |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Leu | Arg | Gln | Pro | Pro | Ser | His | Arg | Lys | Leu | Phe | Val | Gly | Met | Leu | Asn |



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<210> 4457
<211> 1491
<212> DNA
<213> Homo sapiens
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 960  
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 1320  
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 1380  
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 1491

&lt;210&gt; 4458

&lt;211&gt; 405

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4458

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asn | Asn | Gln | Lys | Gly | Gln | Leu | Val | Lys | Arg | Leu | Val | Pro | Val | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Leu | Leu | Met | Tyr | Gln | Gln | His | Thr | Ser | His | Tyr | Asp | Leu | Glu | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Lys | Gly | Gly | Tyr | Leu | Met | Leu | Ser | Phe | Ile | Asp | Phe | Cys | Pro | Phe | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Met | Arg | Leu | Arg | Ser | Leu | Pro | Ser | Pro | Gln | Arg | Tyr | Thr | Arg | Gln |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Arg | Tyr | Arg | Ala | Arg | Pro | Pro | Arg | Val | Leu | Glu | Arg | Ser | Gly | Phe |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| His | Asn | Glu | Asn | Ser | Leu | Ala | Ile | Tyr | Gln | Gly | Leu | Val | Tyr | Tyr | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Leu | Trp | Leu | His | Ser | Val | Tyr | Asp | Lys | Asp | Tyr | Tyr | Phe | Phe | Leu | Ala |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Asn | Trp | Arg | Ser | Ala | Gly | Gly | Val | Ser | Ile | Glu | Met | Asp | Ser | Tyr |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Glu | Lys | Ile | Tyr | Asn | Leu | Glu | Ser | Ala | Tyr | Glu | Leu | Pro | Glu | Arg | Ile |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Leu | Asp | Lys | Gly | Thr | Glu | Tyr | Ser | Phe | Ala | Ile | Phe | Leu | Ser | Ala |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gln | Gly | His | Ser | Phe | Arg | Thr | Gln | Ser | Glu | Leu | Gly | Leu | Arg | Gly | Thr |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Arg | Val | Glu | Pro | Glu | Gly | Arg | Gly | Glu | Gly | Tyr | Gln | Asn | Leu | Gly | Ala |

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<210> 4459
<211> 1114
<212> DNA
<213> Homo sapiens
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 1114

&lt;210&gt; 4460

&lt;211&gt; 121

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4460

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Arg | Cys | Pro | Arg | Arg | Arg | Ala | Arg | Gly | Asn | Pro | Gly | Pro | Gly | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Pro | Pro | Ser | Arg | Ala | Ala | Arg | Arg | Ala | Arg | Ala | Leu | Ser | Pro | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Lys | Glu | Arg | Ala | Ala | Pro | Ser | Gln | Gly | Ser | Pro | Arg | Cys | Cys | Pro |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Leu | Ser | Pro | Gly | Ser | Ala | Arg | Gly | Ala | Arg | Gly | Glu | Asn | Gln | Pro | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Arg | Gly | Arg | Ala | Ala | Asn | Gly | Arg | Ala | Pro | Pro | Gly | Pro | Leu | Thr |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Arg | Arg | Leu | Ala | Gly | Arg | Ala | Arg | Thr | Pro | Arg | Pro | Lys | Trp | Leu | Phe |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Gln | Gly | Ala | Ser | Gln | Ala | Gly | Glu | Leu | Gly | Lys | Gln | Arg | Arg | Met | Pro |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |
| Gly | Leu | Val | Lys | Arg | Val | Arg | Asp | Val |     |     |     |     |     |     |     |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     |     |     |

&lt;210&gt; 4461

&lt;211&gt; 488

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4461

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<210> 4462

<211> 96

<212> PRT

<213> Homo sapiens

<400> 4462

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| Thr | Glu | Ser | Tyr | Thr | Ser | Thr | Ala | Met | Ala | Pro | Lys | Gly | Ile | Phe | Cys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Asn | Pro | Tyr | Asn | Asn | Leu | Ile | Phe | Ile | Trp | Gly | Asn | Phe | Leu | Leu | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Ser | Asn | Lys | Glu | Asn | Phe | Ile | Tyr | Leu | Ala | Asp | Phe | Pro | Lys | Glu |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Leu | Ser | Ile | Lys | Tyr | Met | Ala | Arg | Ser | Phe | Arg | Gly | Ala | Val | Ala | Ile |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Val | Thr | Glu | Thr | Glu | Glu | Val | Gly | Cys | Pro | Ala | Leu | Leu | Pro | Ile | Pro |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Ser | Leu | Pro | Thr | Pro | Lys | Pro | Gln | Gly | Pro | Leu | Phe | Pro | Pro | Ser | Gln |
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<210> 4463

<211> 2662

<212> DNA

<213> Homo sapiens

<400> 4463

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<210> 4464

<211> 519

<212> PRT

<213> Homo sapiens

<400> 4464

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ala | Glu | Ala | Ala | Asp | Leu | Gly | Leu | Gly | Ala | Ala | Val | Pro | Val | 1   | 5   | 10  | 15  |
| Glu | Leu | Arg | Arg | Glu | Arg | Arg | Met | Val | Cys | Val | Glu | Tyr | Pro | Gly | Val | 20  | 25  | 30  |     |
| Val | Arg | Asp | Val | Ala | Lys | Met | Leu | Pro | Thr | Leu | Gly | Gly | Glu | Glu | Gly | 35  | 40  | 45  |     |
| Val | Ser | Arg | Ile | Tyr | Ala | Asp | Pro | Thr | Lys | Arg | Leu | Glu | Leu | Tyr | Phe | 50  | 55  | 60  |     |
| Arg | Pro | Lys | Asp | Pro | Tyr | Cys | His | Pro | Val | Cys | Ala | Asn | Arg | Phe | Ser | 65  | 70  | 75  | 80  |
| Thr | Ser | Ser | Leu | Leu | Leu | Arg | Ile | Arg | Lys | Arg | Thr | Arg | Arg | Gln | Lys | 85  | 90  | 95  |     |
| Gly | Val | Leu | Gly | Thr | Glu | Ala | His | Ser | Glu | Val | Thr | Phe | Asp | Met | Glu | 100 | 105 | 110 |     |
| Ile | Leu | Gly | Ile | Ile | Ser | Thr | Ile | Tyr | Lys | Phe | Gln | Gly | Met | Ser | Asp | 115 | 120 | 125 |     |
| Phe | Gln | Tyr | Leu | Ala | Val | His | Thr | Glu | Ala | Gly | Gly | Lys | His | Thr | Ser | 130 | 135 | 140 |     |
| Met | Tyr | Asp | Lys | Val | Leu | Met | Leu | Arg | Pro | Glu | Lys | Glu | Ala | Phe | Phe | 145 | 150 | 155 | 160 |
| His | Gln | Glu | Leu | Pro | Leu | Tyr | Ile | Pro | Pro | Ile | Phe | Ser | Arg | Leu |     | 165 | 170 | 175 |     |
| Asp | Ala | Pro | Val | Asp | Tyr | Phe | Tyr | Arg | Pro | Glu | Thr | Gln | His | Arg | Glu | 180 | 185 | 190 |     |
| Gly | Tyr | Asn | Asn | Pro | Pro | Ile | Ser | Gly | Glu | Asn | Leu | Ile | Gly | Leu | Ser |     |     |     |     |

|   |     |     |
|---|-----|-----|
| 195   | 200 | 205 |
| Arg Ala Arg Arg Pro His Asn Ala Ile Phe Val Asn Phe Glu Asp Glu |     |     |
| 210   | 215 | 220 |
| Glu Val Pro Lys Gln Pro Leu Glu Ala Ala Ala Gln Thr Trp Arg Arg |     |     |
| 225   | 230 | 235 |
| Val Cys Thr Asn Pro Val Asp Arg Lys Val Glu Glu Glu Leu Arg Lys |     |     |
| 245   | 250 | 255 |
| Leu Phe Asp Ile Arg Pro Ile Trp Ser Arg Asn Ala Val Lys Ala Asn |     |     |
| 260   | 265 | 270 |
| Ile Ser Val His Pro Asp Lys Leu Lys Val Leu Leu Pro Phe Ile Ala |     |     |
| 275   | 280 | 285 |
| Tyr Tyr Met Ile Thr Gly Pro Trp Arg Ser Leu Trp Ile Arg Phe Gly |     |     |
| 290   | 295 | 300 |
| Tyr Asp Pro Arg Lys Asn Pro Asp Ala Lys Ile Tyr Gln Val Leu Asp |     |     |
| 305   | 310 | 315 |
| Phe Arg Ile Arg Cys Gly Met Lys His Gly Tyr Ala Pro Ser Asp Leu |     |     |
| 325   | 330 | 335 |
| Pro Val Lys Ala Lys Arg Ser Thr Tyr Asn Tyr Ser Leu Pro Ile Thr |     |     |
| 340   | 345 | 350 |
| Val Lys Lys Thr Ser Ser Gln Leu Val Thr Met His Asp Leu Lys Gln |     |     |
| 355   | 360 | 365 |
| Gly Leu Gly Arg Ser Gly Thr Ser Gly Ala Arg Lys Pro Ala Ser Ser |     |     |
| 370   | 375 | 380 |
| Lys Tyr Lys Leu Lys Asp Ser Val Tyr Ile Phe Arg Glu Gly Ala Leu |     |     |
| 385   | 390 | 395 |
| Pro Pro Tyr Arg Gln Met Phe Tyr Gln Leu Cys Asp Leu Asn Val Glu |     |     |
| 405   | 410 | 415 |
| Glu Leu Gln Lys Ile Ile His Arg Asn Asp Gly Ala Glu Asn Ser Cys |     |     |
| 420   | 425 | 430 |
| Thr Glu Arg Asp Gly Trp Cys Leu Pro Lys Thr Ser Asp Glu Leu Arg |     |     |
| 435   | 440 | 445 |
| Asp Thr Met Ser Leu Met Ile Arg Gln Thr Ile Arg Ser Lys Arg Pro |     |     |
| 450   | 455 | 460 |
| Ala Leu Phe Ser Ser Ser Ala Lys Ala Asp Gly Gly Lys Glu Gln Leu |     |     |
| 465   | 470 | 475 |
| Thr Tyr Glu Ser Gly Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu     |     |     |
| 485   | 490 | 495 |
| Glu Glu Glu Asp Phe Lys Pro Ser Asp Gly Ser Glu Asn Glu Met Glu |     |     |
| 500   | 505 | 510 |
| Thr Glu Ile Leu Asp Tyr Val                                     |     |     |
| 515   |     |     |

&lt;210&gt; 4465

&lt;211&gt; 1291

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4465

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180

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&lt;210&gt; 4466

&lt;211&gt; 93

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4466

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Leu | Glu | Arg | Gln | Val | Arg | Ala | Glu | Ile | Glu | His | Lys | Lys | Glu | Glu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Leu | Arg | Gln | Met | Val | Gly | Glu | Arg | Tyr | Arg | Asp | Leu | Ile | Glu | Ala | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asp | Thr | Ile | Gly | Gln | Met | Arg | Arg | Xaa | Ala | Val | Gly | Leu | Val | Asp | Ala |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Val | Lys | Ala | Thr | Asp | Gln | Tyr | Cys | Ala | Arg | Leu | Arg | Gln | Ala | Gly | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ala | Ala | Pro | Arg | Pro | Pro | Arg | Ala | Gln | Gln | Pro | Gln | Gln | Pro | Ser | Gln |

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<210> 4468
<211> 170
<212> PRT
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<213> Homo sapiens

<400> 4468

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      20             25             30
Asp Leu Leu Cys Lys Asn Ile Ile Tyr Asp Ser Ile Lys Gly His Val
      35             40             45
Arg Phe Ile Asp Tyr Glu Tyr Ala Gly Tyr Asn Tyr Gln Ala Phe Asp
      50             55             60
Ile Gly Asn His Phe Asn Glu Phe Ala Gly Val Asn Glu Val Asp Tyr
      65             70             75             80
Cys Leu Tyr Pro Ala Arg Glu Thr Gln Leu Gln Trp Leu His Tyr Tyr
      85             90             95
Leu Gln Ala Gln Lys Gly Met Ala Val Thr Pro Arg Glu Val Gln Arg
      100            105            110
Leu Tyr Val Gln Val Asn Lys Phe Ala Leu Ala Ser His Phe Phe Trp
      115            120            125
Ala Leu Trp Ala Leu Ile Gln Asn Gln Tyr Ser Thr Ile Asp Phe Asp
      130            135            140
Phe Leu Arg Tyr Ala Val Ile Arg Phe Asn Gln Tyr Phe Lys Val Lys
      145            150            155            160
Pro Gln Ala Ser Ala Leu Glu Met Pro Lys
      165            170

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<210> 4469

<211> 409

<212> DNA

<213> Homo sapiens

<400> 4469

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120
ggcctgggat ggccaagaca gttggaaagc aggagatgga caacttgaag gcattgcaca
180
gtgctttaga ggctctctgc gageccttggg tttgaagctt taacaggcct ccctcccatc
240
tggaatatag tagctgtgtc tgagactcct ggagaacaat taatatgagg gccaggcaga
300
tcacaatttc aggaaaatgg ctaccctgtg aggagagaaa gccaccaat gatgctgata
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409

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<210> 4470

<211> 55

<212> PRT

<213> Homo sapiens

<400> 4470

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Ile Tyr Asp Ala Gln His Ala Asn Leu Ala Gly Thr Leu Ser Gly His

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|   |    |    |    |
|---|----|----|----|
| 1   | 5  | 10 | 15 |
| Ala Ser Trp Val Leu Asn Val Ala Phe Cys Pro Asp Asp Thr His Phe |    |    |    |
|   | 20 | 25 | 30 |
| Val Ser Arg Ser Gln Cys Trp Ser Gly Leu Gly Trp Pro Arg Gln Leu |    |    |    |
|   | 35 | 40 | 45 |
| Glu Ser Arg Arg Trp Thr Thr                                     |    |    |    |
| 50  | 55 |    |    |

&lt;210&gt; 4471

&lt;211&gt; 1771

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4471

```

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60
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120
catccagcag gcgcttaata aatggccaag tcattgtttg ggtttctaaa taaggctctc
180
ctaattggcg ggtctggcca cggctccagt gtccctgggc agccctccga ggggcccggca
240
cagggcgcac tataaatgag cggctgcgca cgcaggggca ctgcaacgcg gaggagcagg
300
atggagatcc ctgtgcctgt gcagccgtct tggctgcgcc gcgcctcggc cccgttgccc
360
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420
gagctggctg cgctctgccc caccacgctc gccccctact acctgcgcgc acccagcgtg
480
gcgctgcccc tgcgccagggt gccgacggac cccggccact ttctgggtgct gctagacgtg
540
aagcacttct cgccggagga aattgctgtc aagggtggtg gcgaacacgt ggaggtgcac
600
gcgcgccacg aggagcgccc ggatgagcac ggattcgtcg cgcgcgagtt ccaccgtcgc
660
taccgcctgc cgcttggcgt ggatccggct gccgtgacgt ccgcgctgtc ccccaggggc
720
gtcctgtcca tccagggcgc accagcgtcg gcccaggccc caccgccagc cgcagccaag
780
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960
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1020
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1080
ctttcttggc atatagcccc acttaagacc cctcctctac ttcttctga gtcctctaca
1140
aagacatccg ggtactacat ttccatccct tccctatatt gacaccaa at tatggtgtag
1200

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 1260  
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 1320  
 cctgcaacca gacagtctac aactgcccc tccagcccat tttctgccgt gaaaccccag  
 1380  
 ccagccacac cagactctgg aacccttttt cgactgcccc aactcttgga caccaggcca  
 1440  
 actagaacac ccaacaccaa actgtacaga ctctcccacc ccaacctccc cagactctgc  
 1500  
 acggatgtcc taggccccct cccaactct aaccagaccc catcccccta agtccctttg  
 1560  
 tcttgacccc caagtcttca accagatata ctcggaacc cacctcccac ctcctcctc  
 1620  
 ttctccttca agacccaact gagcacccgc tctgattccc cacagccttt ctccctgcca  
 1680  
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 1740  
 aaaagaaaaa aaagtcgacg cggccggaat t  
 1771

&lt;210&gt; 4472

&lt;211&gt; 160

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4472

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Ile | Pro | Val | Pro | Val | Gln | Pro | Ser | Trp | Leu | Arg | Arg | Ala | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Pro | Leu | Pro | Gly | Leu | Ser | Ala | Pro | Gly | Arg | Leu | Phe | Asp | Gln | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Phe | Gly | Glu | Gly | Leu | Leu | Glu | Ala | Glu | Leu | Ala | Ala | Leu | Cys | Pro | Thr |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Thr | Leu | Ala | Pro | Tyr | Tyr | Leu | Arg | Ala | Pro | Ser | Val | Ala | Leu | Pro | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ala | Gln | Val | Pro | Thr | Asp | Pro | Gly | His | Phe | Ser | Val | Leu | Leu | Asp | Val |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Lys | His | Phe | Ser | Pro | Glu | Glu | Ile | Ala | Val | Lys | Val | Val | Gly | Glu | His |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Val | Glu | Val | His | Ala | Arg | His | Glu | Glu | Arg | Pro | Asp | Glu | His | Gly | Phe |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Val | Ala | Arg | Glu | Phe | His | Arg | Arg | Tyr | Arg | Leu | Pro | Pro | Gly | Val | Asp |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Pro | Ala | Ala | Val | Thr | Ser | Ala | Leu | Ser | Pro | Glu | Gly | Val | Leu | Ser | Ile |
|     | 130 |     |     |     |     | 135 |     |     |     | 140 |     |     |     |     |     |
| Gln | Ala | Ala | Pro | Ala | Ser | Ala | Gln | Ala | Pro | Pro | Pro | Ala | Ala | Ala | Lys |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |

&lt;210&gt; 4473

&lt;211&gt; 1255

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4473

gccggcgcgga tgccccgccc cttcgatagc tcatctttgc ggcgcgcagt cgcgcggagc  
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 ccggcttccg acgtgcagcc tggcagtgcg gtgagctgtc tggccttttg tccttgatcc  
 120  
 ttggttaagg aaatgaccaa ccagtagcgt attctcttca aacaagagca agcccatgat  
 180  
 gatgccattt ggtagcttgc ttggggggaca aacaagaagg aaaactctga gacagtgggc  
 240  
 acaggctccc tagatgacct ggtgaaggtc tggaaatggc gtgatgagag gctggacctc  
 300  
 cagtggagtc tggagggaca tcagctggga gtggtgtctg tggacatcag ccacaccctt  
 360  
 cccattgctg cctccagttc tctagatgct catattcgac tctgggactt ggaaaatggc  
 420  
 aaacagatga agtctataga tgcaggaccg gtggatgcct ggactttggc attctctccg  
 480  
 gactcccagc atctggcaac aggaactcac atggggaaaag tgaacatttt tgggtgtggaa  
 540  
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 600  
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 660  
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 720  
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 780  
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 840  
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 900  
 aaagtttggg atgttggaac gaggacttgt gttcacacct tctttgatca ccaggatcag  
 960  
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 1020  
 gaaattcaca tctatgattg tccaatttaa acatcaaagt ctccaggctt atgctgcaaa  
 1080  
 gagaatgtac ggattgatca tgacattcct taccttctta ggcttgttta aaagaaatat  
 1140  
 agcatttatt gtagcaaaga cttaaatttt gtagatacaa tatgaatctt ttcagtgttt  
 1200  
 attggaaatg ctgttcatac tttaacataa agctttctta atgcaaaaaa aaaaa  
 1255

&lt;210&gt; 4474

&lt;211&gt; 305

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4474

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Thr | Asn | Gln | Tyr | Gly | Ile | Leu | Phe | Lys | Gln | Glu | Gln | Ala | His | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Asp | Ala | Ile | Trp | Ser | Val | Ala | Trp | Gly | Thr | Asn | Lys | Lys | Glu | Asn | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Thr | Val | Val | Thr | Gly | Ser | Leu | Asp | Asp | Leu | Val | Lys | Val | Trp | Lys |

```
<210> 4475
<211> 475
<212> DNA
<213> Homo sapiens
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120
tggtctgtcg tgaagctgga gagccgtgca aggcgacaga gccttctgtg tggcccgctc
180
tggcgctctg gggcaagggc tgacttgagc tgcttcgtct gctcatctgc tgtctgccag
240
ctgccctcag acctcctcct ggggtgcagc cgttccact tgagaggagg gtgggtcttca
300
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360
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ccacttctga gggctggagg gacaggaact tcctttcttc cccctttctg tctcctcgcg  
 420  
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 475

<210> 4476

<211> 106

<212> PRT

<213> Homo sapiens

<400> 4476

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Cys | Leu | Pro | Pro | Lys | Val | Lys | Thr | Thr | Ser | Leu | Ser | Ser | Gly | Asn |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Leu | His | Pro | Gly | Gly | Gly | Leu | Arg | Ala | Ala | Gly | Arg | Gln | Gln | Met |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Arg | Arg | Ser | Ser | Ser | Ser | Gln | Pro | Leu | Pro | Gln | Ser | Ala | Arg | Thr |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gly | His | Thr | Glu | Gly | Ser | Val | Ala | Leu | His | Gly | Ser | Pro | Ala | Ser | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gln | Thr | Ser | Gln | Arg | Trp | Thr | Val | Cys | Gln | Gly | Trp | Asp | Trp | Asn | Ser |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Arg | Arg | Ser | Leu | Asp | Thr | Ser | Gly | Ile | Arg | Glu | Thr | Ser | Leu | Gly | Arg |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Tyr | Pro | Leu | Pro | Ser | Ser | Arg | Val | His | Ala |     |     |     |     |     |     |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     |     |     |

<210> 4477

<211> 1153

<212> DNA

<213> Homo sapiens

<400> 4477

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 120  
 taggccaggg cagatgggat atgacgaatg gactgccagc tggatacaag gatgctcacc  
 180  
 aagcaccaag ttctcacaag ttattttatg tgactttgca ggaactgagg cattatatct  
 240  
 gaggacacca ggggaaaagt gtggcatctc agggaaatac agccctgggc tgtgtctaca  
 300  
 cacaccatga gagtgcgat gggggcgcaa tagtcttgaa aatgtataaa gtgtccagga  
 360  
 atggaagtgc tctttgatcc attattatct tcttcttca tattcccctc ccagagtctc  
 420  
 ctatctagga catcagcatt ctcacacaag cctaattggct tatctgagta agcagggctt  
 480  
 agaaattcac tttcttgata ctcagtcttg ccttctaaac actccttgat cttgcctacc  
 540  
 tctccccttt tccacatgct ttttcctgta ggaacacttt ctccatttat tctgcctat  
 600  
 ccaattcttc cctatatttc ctggaccagc taaagtccag tgtttccaga gacttttgaa  
 660



agtcaactta cactttttcc ttcttcattc acaaagctct tcttccctgg gccctgggtat  
 720  
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 840  
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 900  
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 960  
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 1020  
 gcatgaagga tgttttcttc ctgagaaaca gtgtcaaggg ctggaggaag agggcaaaat  
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 1153

<210> 4478  
 <211> 118  
 <212> PRT  
 <213> Homo sapiens

<400> 4478  
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 Lys Thr Glu Tyr Gln Glu Ser Glu Phe Leu Ser Pro Ala Tyr Ser Asp  
 20 25 30  
 Lys Pro Leu Gly Leu Cys Glu Asn Ala Asp Val Leu Asp Arg Arg Leu  
 35 40 45  
 Trp Glu Gly Asn Met Lys Glu Glu Asn Asn Asn Glu Ser Lys Ser Thr  
 50 55 60  
 Ser Ile Pro Gly His Phe Ile His Phe Gln Asp Tyr Cys Ala Pro Ile  
 65 70 75 80  
 Ser Thr Leu Met Val Cys Val Asp Thr Ala Gln Gly Cys Ile Ser Leu  
 85 90 95  
 Arg Cys His Thr Phe Pro Leu Val Ser Ser Asp Ile Met Pro Gln Phe  
 100 105 110  
 Leu Gln Ser His Ile Lys  
 115

<210> 4479  
 <211> 2158  
 <212> DNA  
 <213> Homo sapiens

<400> 4479  
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 120  
 ggcgggccac gcgcagcaca gggagagatg agcagcacca gcagtaagag ggctccgacc  
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240  
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1140  
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1560  
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1620  
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1740  
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1800

cacatccccgt gccccctgcg ctggccttca cagtaggtaa tggctccggc ccgggtgttc  
 1860  
 gctgtccacg gaacatggca gaggggcacc ccggcccga aagacgccag agccagcagg  
 1920  
 ggctgtttcg ggccgctgg ctccccgggt ctccggccgtc tcccctcttc tgcgtctgtt  
 1980  
 ccgtgacttc gcctgggtgg gatgtaccgc aggtgcatcg cgtcgaggtg gggcacggcc  
 2040  
 gccggcaaga aaccaccct gtccggaggc gggcgtgaga caagcccagc ccgcacgcgc  
 2100  
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<210> 4480

<211> 308

<212> PRT

<213> Homo sapiens

<400> 4480

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Arg | Arg | Pro | Ala | Ala | Gly | Ser | Val | Gly | Pro | Ile | Pro | Gly | Arg | Cys | 1   | 5   | 10  | 15  |
| Gly | Cys | Phe | Gly | Arg | Gly | Pro | Arg | Phe | Ser | Ala | Pro | Cys | Ser | Gly | Leu | 20  | 25  | 30  |     |
| Asp | Tyr | Gly | Glu | Pro | Glu | Arg | Gly | Gly | Gly | Pro | Arg | Ala | Ala | Gln | Gly | 35  | 40  | 45  |     |
| Glu | Met | Ser | Ser | Thr | Ser | Ser | Lys | Arg | Ala | Pro | Thr | Thr | Ala | Thr | Gln | 50  | 55  | 60  |     |
| Arg | Leu | Lys | Gln | Asp | Tyr | Leu | Arg | Ile | Lys | Lys | Asp | Pro | Val | Pro | Tyr | 65  | 70  | 75  | 80  |
| Ile | Cys | Ala | Glu | Pro | Leu | Pro | Ser | Asn | Ile | Leu | Glu | Trp | His | Tyr | Val | 85  | 90  | 95  |     |
| Val | Arg | Gly | Pro | Glu | Met | Thr | Pro | Tyr | Glu | Gly | Gly | Tyr | Tyr | His | Gly | 100 | 105 | 110 |     |
| Lys | Leu | Ile | Phe | Pro | Arg | Glu | Phe | Pro | Phe | Lys | Pro | Pro | Ser | Ile | Tyr | 115 | 120 | 125 |     |
| Met | Ile | Thr | Pro | Asn | Gly | Arg | Phe | Lys | Cys | Asn | Thr | Arg | Leu | Cys | Leu | 130 | 135 | 140 |     |
| Ser | Ile | Thr | Asp | Phe | His | Pro | Asp | Thr | Trp | Asn | Pro | Ala | Trp | Ser | Val | 145 | 150 | 155 | 160 |
| Ser | Thr | Ile | Leu | Thr | Gly | Leu | Leu | Ser | Phe | Met | Val | Glu | Lys | Gly | Pro | 165 | 170 | 175 |     |
| Thr | Leu | Gly | Ser | Ile | Glu | Thr | Ser | Asp | Phe | Thr | Lys | Arg | Gln | Leu | Ala | 180 | 185 | 190 |     |
| Val | Gln | Ser | Leu | Ala | Phe | Asn | Leu | Lys | Asp | Lys | Val | Phe | Cys | Glu | Leu | 195 | 200 | 205 |     |
| Phe | Pro | Glu | Val | Val | Glu | Glu | Ile | Lys | Gln | Lys | Gln | Lys | Ala | Gln | Asp | 210 | 215 | 220 |     |
| Glu | Leu | Ser | Ser | Arg | Pro | Gln | Thr | Leu | Pro | Leu | Pro | Asp | Val | Val | Pro | 225 | 230 | 235 | 240 |
| Asp | Gly | Glu | Thr | His | Leu | Val | Gln | Asn | Gly | Ile | Gln | Leu | Leu | Asn | Gly | 245 | 250 | 255 |     |
| His | Ala | Pro | Gly | Ala | Val | Pro | Asn | Leu | Ala | Gly | Leu | Gln | Gln | Ala | Asn | 260 | 265 | 270 |     |
| Arg | His | His | Gly | Leu | Leu | Gly | Gly | Ala | Leu | Ala | Asn | Leu | Phe | Val | Ile |     |     |     |     |



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<210> 4484

<211> 452

<212> PRT

<213> Homo sapiens

<400> 4484

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| Met | Glu | Phe | Gln | Ala | Val | Val | Met | Ala | Val | Gly | Gly | Gly | Ser | Arg | Met |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Thr | Asp | Leu | Thr | Ser | Ser | Ile | Pro | Lys | Pro | Leu | Leu | Pro | Val | Gly | Asn |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Lys | Pro | Leu | Ile | Trp | Tyr | Pro | Leu | Asn | Leu | Leu | Glu | Arg | Val | Gly | Phe |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |
| Glu | Glu | Val | Ile | Val | Val | Thr | Thr | Arg | Asp | Val | Gln | Lys | Ala | Leu | Cys |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ala | Glu | Phe | Lys | Met | Lys | Met | Lys | Pro | Asp | Ile | Val | Cys | Ile | Pro | Asp |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Asp | Ala | Asp | Met | Gly | Thr | Ala | Asp | Ser | Leu | Arg | Tyr | Ile | Tyr | Pro | Lys |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Leu | Lys | Thr | Asp | Val | Leu | Val | Leu | Ser | Cys | Asp | Leu | Ile | Thr | Asp | Val |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ala | Leu | His | Glu | Val | Val | Asp | Leu | Phe | Arg | Ala | Tyr | Asp | Ala | Ser | Leu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ala | Met | Leu | Met | Arg | Lys | Gly | Gln | Asp | Ser | Ile | Glu | Pro | Val | Pro | Gly |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gln | Lys | Gly | Lys | Lys | Lys | Ala | Val | Glu | Gln | Arg | Asp | Phe | Ile | Gly | Val |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Asp | Ser | Thr | Gly | Lys | Arg | Leu | Leu | Phe | Met | Ala | Asn | Glu | Ala | Asp | Leu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Asp | Glu | Glu | Leu | Val | Ile | Lys | Gly | Ser | Ile | Leu | Gln | Lys | His | Pro | Arg |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ile | Arg | Phe | His | Thr | Gly | Leu | Val | Asp | Ala | His | Leu | Tyr | Cys | Leu | Lys |
|     |     | 195 |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| Lys | Tyr | Ile | Val | Asp | Phe | Leu | Met | Glu | Asn | Gly | Ser | Ile | Thr | Ser | Ile |
|     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Arg | Ser | Glu | Leu | Ile | Pro | Tyr | Leu | Val | Arg | Lys | Gln | Phe | Ser | Ser | Ala |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Ser | Ser | Gln | Gln | Gly | Gln | Glu | Glu | Lys | Glu | Glu | Asp | Leu | Lys | Lys | Lys |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Glu | Leu | Lys | Ser | Leu | Asp | Ile | Tyr | Ser | Phe | Ile | Lys | Glu | Ala | Asn | Thr |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Leu | Asn | Leu | Ala | Pro | Tyr | Asp | Ala | Cys | Trp | Asn | Ala | Cys | Arg | Gly | Asp |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Arg | Trp | Glu | Asp | Leu | Ser | Arg | Ser | Gln | Val | Arg | Cys | Tyr | Val | His | Ile |
|     |     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Met | Lys | Glu | Gly | Leu | Cys | Ser | Arg | Val | Ser | Thr | Leu | Gly | Leu | Tyr | Met |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     | 320 |     |
| Glu | Ala | Asn | Arg | Gln | Val | Pro | Lys | Leu | Leu | Ser | Ala | Leu | Cys | Pro | Glu |

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          325          330          335
Glu Pro Pro Val His Ser Ser Ala Gln Ile Val Ser Lys His Leu Val
          340          345          350
Gly Val Asp Ser Leu Ile Gly Pro Glu Thr Gln Ile Gly Glu Lys Ser
          355          360          365
Ser Ile Lys Arg Ser Val Ile Gly Ser Ser Cys Leu Ile Lys Asp Arg
          370          375          380
Val Thr Ile Thr Asn Cys Leu Leu Met Asn Ser Val Thr Val Glu Glu
385          390          395          400
Gly Ser Asn Ile Gln Gly Ser Val Ile Cys Asn Asn Ala Val Ile Glu
          405          410          415
Lys Gly Ala Asp Ile Lys Asp Cys Leu Ile Gly Ser Gly Gln Arg Ile
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Leu Met Glu Ile
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 <212> DNA  
 <213> Homo sapiens

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240
cgggcagggt gacctccttc ccaggcagt tccacacctg atcccaaaag tcagttctaa
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<210> 4486  
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 <212> PRT  
 <213> Homo sapiens

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<400> 4486
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          20          25          30
Ser Ile Ser Leu Pro Ser Gly Ala Pro Gly Gly Gln Gly Asp Leu Leu

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          35          40          45
Pro Gln Ala Val Pro His Leu Ile Pro Lys Val Ser Ser Asn Glu Val
          50          55          60
Asp Ser Phe Lys Tyr Trp Trp Phe Trp Leu Ala Arg Val Ser Glu Gly
65          70          75          80
Thr Glu Lys Thr Pro Lys Cys Arg Val Cys Asp Thr Ala Gln Ser Ser
          85          90          95
Pro Met Pro Asn
          100

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&lt;210&gt; 4487

&lt;211&gt; 387

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4487

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300
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360
ctgggtcgta aaggtatctt cactgga
387

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&lt;210&gt; 4488

&lt;211&gt; 129

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4488

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Gln Ser Gln Pro Ile Leu Phe Gly Gln Met Ala Gln Lys Pro Leu Arg
20          25          30
Leu Leu Ala Cys Gly Asp Val Glu Gly Lys Phe Asp Ile Leu Phe Asn
35          40          45
Arg Val Gln Ala Ile Gln Lys Lys Ser Gly Asn Phe Asp Leu Leu Leu
50          55          60
Cys Val Gly Asn Phe Phe Gly Ser Thr Gln Asp Ala Glu Trp Glu Glu
65          70          75          80
Tyr Lys Thr Gly Ile Lys Lys Ala Pro Ile Gln Thr Tyr Val Leu Gly
85          90          95
Ala Asn Asn Gln Glu Thr Val Lys Tyr Phe Gln Asp Ala Asp Gly Cys
100          105          110
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115          120          125
Gly

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<212> DNA  
<213> Homo sapiens

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120  
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&lt;210&gt; 4490

&lt;211&gt; 383

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4490

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ile | Gln | Ile | Val | Gly | Leu | Thr | Glu | Leu | Gln | Ser | Leu | Ala | Val | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Pro | Arg | Val | Phe | Gln | Tyr | Gly | Val | Lys | Val | Val | Leu | Gln | Ala | Met | Tyr |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Leu | Trp | Lys | Leu | Met | Trp | Arg | Glu | Pro | Gly | Ala | Tyr | Ile | Phe | Leu |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Gln | Asn | Pro | Pro | Gly | Leu | Pro | Ser | Ile | Ala | Val | Cys | Trp | Phe | Val | Gly |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Cys | Leu | Cys | Gly | Ser | Lys | Leu | Val | Ile | Asp | Trp | His | Asn | Tyr | Gly | Tyr |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |
| Ser | Ile | Met | Gly | Leu | Val | His | Gly | Pro | Asn | His | Pro | Leu | Val | Leu | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Ala | Lys | Trp | Tyr | Glu | Lys | Phe | Phe | Gly | Arg | Leu | Ser | His | Leu | Asn | Leu |

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<211> 6712
<212> DNA
<213> Homo sapiens
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300
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360
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1980

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6712

&lt;210&gt; 4492

&lt;211&gt; 674

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4492

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 20           25           30
Lys Thr Asp Asn Arg Pro Glu Lys Ser Lys Cys Lys Pro Leu Trp Gly
 35           40           45
Lys Val Phe Tyr Leu Asp Leu Pro Ser Val Thr Ile Ser Glu Lys Leu
 50           55           60
Gln Lys Asp Ile Lys Asp Leu Gly Gly Arg Val Glu Glu Phe Leu Ser
 65           70           75           80
Lys Asp Ile Ser Tyr Leu Ile Ser Asn Lys Lys Glu Ala Lys Phe Ala
 85           90           95
Gln Thr Leu Gly Arg Ile Ser Pro Val Pro Ser Pro Glu Ser Ala Tyr
 100          105          110
Thr Ala Glu Thr Thr Ser Pro His Pro Ser His Asp Gly Ser Ser Phe
 115          120          125
Lys Ser Pro Asp Thr Val Cys Leu Ser Arg Gly Lys Leu Leu Val Glu
 130          135          140
Lys Ala Ile Lys Asp His Asp Phe Ile Pro Ser Asn Ser Ile Leu Ser
 145          150          155          160
Asn Ala Leu Ser Trp Gly Val Lys Ile Leu His Ile Asp Asp Ile Arg
 165          170          175
Tyr Tyr Ile Glu Gln Lys Lys Lys Glu Leu Tyr Leu Leu Lys Lys Ser
 180          185          190
Ser Thr Ser Val Arg Asp Gly Gly Lys Arg Val Gly Ser Gly Ala Gln
 195          200          205
Lys Thr Arg Thr Gly Arg Leu Lys Lys Pro Phe Val Lys Val Glu Asp
 210          215          220
Met Ser Gln Leu Tyr Arg Pro Phe Tyr Leu Gln Leu Thr Asn Met Pro
 225          230          235          240
Phe Ile Asn Tyr Ser Ile Gln Lys Pro Cys Ser Pro Phe Asp Val Asp
 245          250          255
Lys Pro Ser Ser Met Gln Lys Gln Thr Gln Val Lys Leu Arg Ile Gln
 260          265          270
Thr Asp Gly Asp Lys Tyr Gly Gly Thr Ser Ile Gln Leu Gln Leu Lys
 275          280          285
Glu Lys Lys Lys Lys Gly Tyr Cys Glu Cys Cys Leu Gln Lys Tyr Glu
 290          295          300
Asp Leu Glu Thr His Leu Leu Ser Glu Gln His Arg Asn Phe Ala Gln
 305          310          315          320
Ser Asn Gln Tyr Gln Val Val Asp Asp Ile Val Ser Lys Leu Val Phe
 325          330          335
Asp Phe Val Glu Tyr Glu Lys Asp Thr Pro Lys Lys Lys Arg Ile Lys
 340          345          350
Tyr Ser Val Gly Ser Leu Ser Pro Val Ser Ala Ser Val Leu Lys Lys
 355          360          365
Thr Glu Gln Lys Glu Lys Val Glu Leu Gln His Ile Ser Gln Lys Asp
 370          375          380
Cys Gln Glu Asp Asp Thr Thr Val Lys Glu Gln Asn Phe Leu Tyr Lys
 385          390          395          400
Glu Thr Gln Glu Thr Glu Lys Lys Leu Leu Phe Ile Ser Glu Pro Ile

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |  |  |  |  |
| Pro | His | Pro | Ser | Asn | Glu | Leu | Arg | Gly | Leu | Asn | Glu | Lys | Met | Ser | Asn |  |  |  |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |  |  |  |
| Lys | Cys | Ser | Met | Leu | Ser | Thr | Ala | Glu | Asp | Asp | Ile | Arg | Gln | Asn | Phe |  |  |  |  |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |  |  |  |  |
| Thr | Gln | Leu | Pro | Leu | His | Lys | Asn | Lys | Gln | Glu | Cys | Ile | Leu | Asp | Ile |  |  |  |  |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |  |  |  |  |
| Ser | Glu | His | Thr | Leu | Ser | Glu | Asn | Asp | Leu | Glu | Glu | Leu | Arg | Val | Asp |  |  |  |  |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |  |  |  |
| His | Tyr | Lys | Cys | Asn | Ile | Gln | Ala | Ser | Val | His | Val | Ser | Asp | Phe | Ser |  |  |  |  |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |     |  |  |  |  |
| Thr | Asp | Asn | Ser | Gly | Ser | Gln | Pro | Lys | Gln | Lys | Ser | Asp | Thr | Val | Leu |  |  |  |  |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |  |  |  |
| Phe | Pro | Ala | Lys | Asp | Leu | Lys | Glu | Lys | Asp | Leu | His | Ser | Ile | Phe | Thr |  |  |  |  |
|     | 515 |     |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |  |  |  |  |
| His | Asp | Ser | Gly | Leu | Ile | Thr | Ile | Asn | Ser | Ser | Gln | Glu | His | Leu | Thr |  |  |  |  |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |  |  |  |  |
| Val | Gln | Ala | Lys | Ala | Pro | Phe | His | Thr | Pro | Pro | Glu | Glu | Pro | Asn | Glu |  |  |  |  |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |  |  |  |  |
| Cys | Asp | Phe | Lys | Asn | Met | Asp | Ser | Leu | Pro | Ser | Gly | Lys | Ile | His | Arg |  |  |  |  |
|     |     |     | 565 |     |     |     |     | 570 |     |     |     |     |     | 575 |     |  |  |  |  |
| Lys | Val | Lys | Ile | Ile | Leu | Gly | Arg | Asn | Arg | Lys | Glu | Asn | Leu | Glu | Pro |  |  |  |  |
|     |     | 580 |     |     |     |     |     | 585 |     |     |     |     | 590 |     |     |  |  |  |  |
| Asn | Ala | Glu | Phe | Asp | Lys | Arg | Thr | Glu | Phe | Ile | Thr | Gln | Glu | Glu | Asn |  |  |  |  |
|     | 595 |     |     |     |     | 600 |     |     |     |     |     | 605 |     |     |     |  |  |  |  |
| Arg | Ile | Cys | Ser | Ser | Pro | Val | Gln | Ser | Leu | Leu | Asp | Leu | Phe | Gln | Thr |  |  |  |  |
|     | 610 |     |     |     | 615 |     |     |     |     |     | 620 |     |     |     |     |  |  |  |  |
| Ser | Glu | Glu | Lys | Ser | Glu | Phe | Leu | Gly | Phe | Thr | Ser | Tyr | Thr | Glu | Lys |  |  |  |  |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |  |  |  |  |
| Ser | Gly | Ile | Cys | Asn | Val | Leu | Asp | Ile | Trp | Glu | Glu | Glu | Asn | Ser | Asp |  |  |  |  |
|     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |     |  |  |  |  |
| Asn | Leu | Leu | Thr | Ala | Phe | Phe | Ser | Ser | Pro | Ser | Thr | Ser | Thr | Phe | Thr |  |  |  |  |
|     |     | 660 |     |     |     |     |     | 665 |     |     |     |     | 670 |     |     |  |  |  |  |

Gly Phe

&lt;210&gt; 4493

&lt;211&gt; 1829

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4493

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120

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1829

&lt;210&gt; 4494

&lt;211&gt; 111

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4494

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Met Ile Met Gly Met Ile Ala Gln Asn Lys Lys Lys Ser Cys Leu Thr
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      20             25             30
Asp Leu Ile Ser Glu Glu Thr Asp Pro Lys Ile Ile Thr Ala Gly Asn
      35             40             45
Leu Val His Leu Ala Leu Arg Phe Lys Cys Asn Gln Asn Cys Pro Gln
      50             55             60
Gly Pro Ala Ile Lys Ala Leu Ser Leu Ser Thr Phe Trp Tyr Leu Val
65             70             75             80
Arg Glu Leu Phe Thr Val Arg Lys Cys Gly Lys Ile Ala Leu Cys Val
      85             90             95
Cys Val Cys Val Cys Val Cys Val Cys Asn Leu Leu Gly Trp Gly
      100             105             110

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&lt;210&gt; 4495

&lt;211&gt; 3623

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4495

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960

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&lt;210&gt; 4496

&lt;211&gt; 560

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4496

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Phe | Ala | Arg | Met | Ser | Asp | Leu | His | Val | Leu | Leu | Leu | Met | Ala | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Gly | Lys | Thr | Ala | Cys | Gly | Phe | Ser | Leu | Met | Ser | Leu | Leu | Glu | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |
| Leu | Asp | Pro | Asp | Trp | Thr | Pro | Asp | Gln | Tyr | Asp | Tyr | Ser | Tyr | Glu | Asp |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Tyr | Asn | Gln | Glu | Glu | Asn | Thr | Ser | Ser | Thr | Leu | Thr | His | Ala | Glu | Asn |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Asp | Trp | Tyr | Tyr | Thr | Glu | Asp | Gln | Ala | Asp | Pro | Cys | Gln | Pro | Asn |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Pro | Cys | Glu | His | Gly | Gly | Asp | Cys | Leu | Val | His | Gly | Ser | Thr | Phe | Thr |

3680

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 515 |     | 520 |     | 525 |     |     |     |     |     |     |     |     |     |     |
| Trp | Gly | Leu | Glu | Cys | Gly | Lys | Arg | Pro | Gly | Val | Tyr | Thr | Gln | Val | Thr |
|     | 530 |     |     |     | 535 |     |     |     | 540 |     |     |     |     |     |     |
| Lys | Phe | Leu | Asn | Trp | Ile | Lys | Ala | Thr | Ile | Lys | Ser | Glu | Ser | Gly | Phe |
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 <212> DNA  
 <213> Homo sapiens

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 <212> PRT  
 <213> Homo sapiens

<400> 4498  
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 35 40 45  
 Pro Gly Asn Pro Val Gln Gly Gln Cys Gly Glu Glu Glu Asp Ser Leu

|   |     |     |
|---|-----|-----|
| 50  | 55  | 60  |
| Asp Leu Ser Ser Thr Phe Val Ser Leu Ala Leu Arg Lys Val Gly Asp |     |     |
| 65  | 70  | 75  |
| Trp Pro Leu Ser Ala Arg Arg Glu Lys Gly Leu Asn Gln Glu Pro Gln |     | 80  |
|   | 85  | 90  |
| Gly Arg Gly Leu Ala Leu Gln Lys Met Gly Gln Glu Glu Glu Ser Pro |     | 95  |
|   | 100 | 105 |
| Pro Arg Glu Glu Arg Pro Gln Gln Ser Pro Lys Ala Ser Pro Gly Leu |     | 110 |
|   | 115 | 120 |
| Leu Ala Ala Ala Leu Gln Gln Ser Gln Glu Leu Ala Lys Leu Gly Thr |     | 125 |
|   | 130 | 135 |
| Ser Phe Ala Gln Asn Gly Phe Tyr His Glu Ala Val Val Leu Phe Thr |     | 140 |
| 145   | 150 | 155 |
| Gln Ala Leu Lys Leu Asn Pro Gln Asp His Arg Leu Phe Gly Asn Arg |     | 160 |
|   | 165 | 170 |
| Ser Phe Cys His Glu Arg Leu Gly Gln Pro Ala Trp Ala Leu Ala Asp |     | 175 |
|   | 180 | 185 |
| Ala Gln Val Ala Leu Thr Leu Arg Pro Gly Trp Pro Arg Gly Leu Phe |     | 190 |
|   | 195 | 200 |
| Arg Leu Gly Lys Ala Leu Met Gly Leu Gln Arg Phe Arg Glu Ala Ala |     | 205 |
|   | 210 | 215 |
| Ala Val Phe Gln Glu Thr Leu Arg Gly Gly Ser Gln Pro Asp Ala Ala |     | 220 |
| 225   | 230 | 235 |
| Arg Glu Leu Arg Ser Cys Leu Leu His Leu Thr Leu Gln Gly Gln Arg |     | 240 |
|   | 245 | 250 |
| Gly Gly Ile Cys Ala Pro Pro Leu Ser Pro Gly Ala Leu Gln Pro Leu |     | 255 |
|   | 260 | 265 |
| Pro His Ala Glu Leu Ala Pro Ser                                 |     | 270 |
|   | 275 | 280 |

&lt;210&gt; 4499

&lt;211&gt; 562

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4499

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<212> PRT  
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35 40 45  
Ser Leu Cys Gly Asp Trp Leu Gln Gly Leu His Arg Phe Val Ala Arg  
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<212> DNA  
<213> Homo sapiens

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780

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 1866

&lt;210&gt; 4502

&lt;211&gt; 267

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4502

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Gly | Cys | Phe | Pro | Val | Ser | Gly | Leu | Arg | Cys | Leu | Ser | Arg | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Arg | Met | Ala | Ala | Gln | Gly | Ala | Pro | Arg | Phe | Leu | Leu | Thr | Phe | Asp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Phe | Asp | Glu | Thr | Ile | Val | Asp | Glu | Asn | Ser | Asp | Asp | Ser | Ile | Val | Arg |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ala | Ala | Pro | Gly | Gln | Arg | Leu | Pro | Glu | Ser | Leu | Arg | Ala | Thr | Tyr | Arg |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Gly | Phe | Tyr | Asn | Glu | Tyr | Met | Gln | Arg | Val | Phe | Lys | Tyr | Leu | Gly |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Glu | Gln | Gly | Val | Arg | Pro | Arg | Asp | Leu | Ser | Ala | Ile | Tyr | Glu | Ala | Ile |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Pro | Leu | Ser | Pro | Gly | Met | Ser | Asp | Leu | Leu | Gln | Phe | Val | Ala | Lys | Gln |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gly | Ala | Cys | Phe | Glu | Val | Ile | Leu | Ile | Ser | Asp | Ala | Asn | Thr | Phe | Gly |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Val | Glu | Ser | Ser | Leu | Arg | Ala | Ala | Gly | His | His | Ser | Leu | Phe | Arg | Arg |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ile | Leu | Ser | Asn | Pro | Ser | Gly | Pro | Asp | Ala | Arg | Gly | Leu | Leu | Ala | Leu |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Arg | Pro | Phe | His | Thr | His | Ser | Cys | Ala | Arg | Cys | Pro | Ala | Asn | Met | Cys |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     | 175 |     |     |
| Lys | His | Lys | Val | Leu | Ser | Asp | Tyr | Leu | Arg | Glu | Arg | Ala | His | Asp | Gly |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     | 190 |     |     |     |
| Val | His | Phe | Glu | Arg | Leu | Phe | Tyr | Val | Gly | Asp | Gly | Ala | Asn | Asp | Phe |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Cys | Pro | Met | Gly | Leu | Leu | Ala | Gly | Gly | Asp | Val | Ala | Phe | Pro | Arg | Arg |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gly | Tyr | Pro | Met | His | Arg | Leu | Ile | Gln | Glu | Ala | Gln | Lys | Ala | Glu | Pro |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     | 240 |     |
| Ser | Ser | Phe | Arg | Ala | Ser | Val | Val | Pro | Trp | Glu | Thr | Ala | Ala | Asp | Val |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Arg | Leu | His | Leu | Gln | Gln | Val | Leu | Lys | Ser | Cys |     |     |     |     |     |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     |     |     |     |

&lt;210&gt; 4503

&lt;211&gt; 1983

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4503

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&lt;210&gt; 4504

&lt;211&gt; 250

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

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 Thr Thr Val Ile Gln Asn Val Asn Lys Ala Gln Val Lys Ile Arg Ala  
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 Lys Lys Asp Asn Val Ala Gly Val Thr Leu Pro Val Phe Glu His Tyr  
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 His Glu Gly Thr Asp Ser Tyr Glu Leu Thr Gly Leu Ala Arg Gly Gly  
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 Tyr Val Ile Ile Pro Arg Ile Glu Arg Thr Leu Ala Tyr Ile Ile Thr  
 180 185 190  
 Glu Leu Asp Glu Arg Glu Arg Glu Glu Phe Tyr Arg Leu Lys Lys Ile  
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 Gln Glu Lys Lys Lys Ile Leu Lys Glu Lys Ser Glu Lys Asp Leu Glu  
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&lt;210&gt; 4505

&lt;211&gt; 379

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4505

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&lt;210&gt; 4506

&lt;211&gt; 121

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4506

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Gly Ser Leu Glu His Val Leu Gln Ser Asn Gln Arg Gln Lys Glu Arg
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Arg Arg Gln Trp Trp Leu Trp Leu Ser Ser Leu Ser Asn Gln Ile His
        35           40           45
Pro Thr Pro Ser Ala Gln Gly Gln Ala Ala Leu Arg Gln Thr Cys Pro
      50           55           60
His Leu Arg Glu Ser Gly Pro Leu Ser Val Arg His Val Ala Leu Leu
65           70           75           80
Ala Leu Glu Thr Ala Ser His Pro Ser Gly Pro His Thr Asn Gln Ala
          85           90           95
Pro Ser Pro Ala Thr Ser Pro Lys Cys Pro Ser Glu Pro Ala Thr Pro
        100          105          110
Ser Ser Thr Asp Ser Leu Ile Lys Ile
      115          120

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&lt;210&gt; 4507

&lt;211&gt; 3664

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4507

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&lt;210&gt; 4508

&lt;211&gt; 172

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4508

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ser | Asp | Glu | Gly | Lys | Leu | Phe | Val | Gly | Gly | Leu | Ser | Phe | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
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<212> DNA
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6960  
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 11520  
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 11640  
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 11680

&lt;210&gt; 4510

&lt;211&gt; 3266

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4510

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gln | Ile | Glu | Val | Thr | Ala | Trp | Ile | Gly | Pro | Glu | Thr | Glu | Ser | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Asn | Glu | Phe | Arg | Pro | Leu | Asp | Glu | Arg | Ile | Asp | Glu | Phe | His | Pro | Lys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | Thr | Arg | Thr | Leu | Phe | Ile | Gly | Asn | Leu | Glu | Lys | Thr | Thr | Thr | Tyr |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| His | Asp | Leu | Arg | Asn | Ile | Phe | Gln | Arg | Phe | Gly | Glu | Ile | Val | Asp | Ile |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Asp | Ile | Lys | Lys | Val | Asn | Gly | Val | Pro | Gln | Tyr | Ala | Phe | Leu | Gln | Tyr |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Cys | Asp | Ile | Ala | Ser | Val | Cys | Lys | Ala | Ile | Lys | Lys | Met | Asp | Gly | Glu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Tyr | Leu | Gly | Asn | Asn | Arg | Leu | Lys | Leu | Gly | Phe | Gly | Lys | Ser | Met | Pro |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Thr | Asn | Cys | Val | Trp | Leu | Asp | Gly | Leu | Ser | Ser | Asn | Val | Ser | Asp | Gln |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Tyr | Leu | Thr | Arg | His | Phe | Cys | Arg | Tyr | Gly | Pro | Val | Val | Lys | Val | Val |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Asp | Arg | Leu | Lys | Gly | Met | Ala | Leu | Val | Leu | Tyr | Asn | Glu | Ile | Glu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Tyr | Ala | Gln | Ala | Ala | Val | Lys | Glu | Thr | Lys | Gly | Arg | Lys | Ile | Gly | Gly |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asn | Lys | Ile | Lys | Val | Asp | Phe | Ala | Asn | Arg | Glu | Ser | Gln | Leu | Ala | Phe |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Tyr | His | Cys | Met | Glu | Lys | Ser | Gly | Gln | Asp | Ile | Arg | Asp | Phe | Tyr | Glu |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Met | Leu | Ala | Glu | Arg | Arg | Glu | Glu | Arg | Arg | Ala | Ser | Tyr | Asp | Tyr | Asn |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gln | Asp | Arg | Thr | Tyr | Tyr | Glu | Ser | Val | Arg | Thr | Pro | Gly | Thr | Tyr | Pro |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Glu | Asp | Ser | Arg | Arg | Asp | Tyr | Pro | Ala | Arg | Gly | Arg | Glu | Phe | Tyr | Ser |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Glu | Trp | Glu | Thr | Tyr | Gln | Gly | Asp | Tyr | Tyr | Glu | Ser | Arg | Tyr | Tyr | Asp |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Asp | Pro | Arg | Glu | Tyr | Arg | Asp | Tyr | Arg | Asn | Asp | Pro | Tyr | Glu | Gln | Asp |
|     | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Ile | Arg | Glu | Tyr | Ser | Tyr | Arg | Gln | Arg | Glu | Arg | Glu | Arg | Glu | Arg | Glu |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Arg | Phe | Glu | Ser | Asp | Arg | Asp | Arg | Asp | His | Glu | Arg | Arg | Pro | Ile | Glu |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Arg | Ser | Gln | Ser | Pro | Val | His | Leu | Arg | Arg | Pro | Gln | Ser | Pro | Gly | Ala |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |
| Ser | Pro | Ser | Gln | Ala | Glu | Arg | Leu | Pro | Ser | Asp | Ser | Glu | Arg | Arg | Leu |
|     |     |     | 340 |     |     |     | 345 |     |     |     |     |     | 350 |     |     |
| Tyr | Ser | Arg | Ser | Ser | Asp | Arg | Ser | Gly | Ser | Cys | Ser | Ser | Leu | Ser | Pro |
|     | 355 |     |     |     |     |     | 360 |     |     |     |     |     | 365 |     |     |
| Pro | Arg | Tyr | Glu | Lys | Leu | Asp | Lys | Ser | Arg | Leu | Glu | Arg | Tyr | Thr | Lys |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Asn | Glu | Lys | Thr | Asp | Lys | Glu | Arg | Thr | Phe | Asp | Pro | Glu | Arg | Val | Glu |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Arg | Glu | Arg | Arg | Leu | Ile | Arg | Lys | Glu | Lys | Val | Glu | Lys | Asp | Lys | Thr |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     | 415 |     |
| Asp | Lys | Gln | Lys | Arg | Lys | Gly | Lys | Val | His | Ser | Pro | Ser | Ser | Gln | Ser |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     |     | 430 |     |
| Ser | Glu | Thr | Asp | Gln | Glu | Asn | Glu | Arg | Glu | Gln | Ser | Pro | Glu | Lys | Pro |
|     | 435 |     |     |     |     |     | 440 |     |     |     |     |     | 445 |     |     |
| Arg | Ser | Cys | Asn | Lys | Leu | Ser | Arg | Glu | Lys | Ala | Asp | Lys | Glu | Gly | Ile |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Ala | Lys | Asn | Arg | Leu | Glu | Leu | Met | Pro | Cys | Val | Val | Leu | Thr | Arg | Val |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Lys | Glu | Lys | Glu | Gly | Lys | Val | Ile | Asp | His | Thr | Pro | Val | Glu | Lys | Leu |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |     |
| Lys | Ala | Lys | Leu | Asp | Asn | Asp | Thr | Val | Lys | Ser | Ser | Ala | Leu | Asp | Gln |

**3700**

930 935 940  
 Ala Gly Arg Phe Asp Val Ser Phe Pro Asn Ser Ile Ile Lys Arg Asp  
 945 950 955 960  
 Ser Leu Arg Lys Arg Ser Val Arg Asp Leu Glu Pro Gly Glu Val Pro  
 965 970 975  
 Ser Asp Ser Asp Glu Asp Gly Glu His Lys Ser His Ser Pro Arg Ala  
 980 985 990  
 Ser Ala Leu Tyr Glu Ser Ser Arg Leu Ser Phe Leu Leu Arg Asp Arg  
 995 1000 1005  
 Glu Asp Lys Leu Arg Glu Arg Asp Glu Arg Leu Ser Ser Ser Leu Glu  
 1010 1015 1020  
 Arg Asn Lys Phe Tyr Ser Phe Ala Leu Asp Lys Thr Ile Thr Pro Asp  
 1025 1030 1035 1040  
 Thr Lys Ala Leu Leu Glu Arg Ala Lys Ser Leu Ser Ser Ser Arg Glu  
 1045 1050 1055  
 Glu Asn Trp Ser Phe Leu Asp Trp Asp Ser Arg Phe Ala Asn Phe Arg  
 1060 1065 1070  
 Asn Asn Lys Asp Lys Glu Lys Val Asp Ser Ala Pro Arg Pro Ile Pro  
 1075 1080 1085  
 Ser Trp Tyr Met Lys Lys Lys Lys Ile Arg Thr Asp Ser Glu Gly Lys  
 1090 1095 1100  
 Met Asp Asp Lys Lys Glu Asp His Lys Glu Glu Glu Gln Glu Arg Gln  
 1105 1110 1115 1120  
 Glu Leu Phe Ala Ser Arg Phe Leu His Ser Ser Ile Phe Glu Gln Asp  
 1125 1130 1135  
 Ser Lys Arg Leu Gln His Leu Glu Arg Lys Glu Glu Asp Ser Asp Phe  
 1140 1145 1150  
 Ile Ser Gly Arg Ile Tyr Gly Lys Gln Thr Ser Glu Gly Ala Asn Ser  
 1155 1160 1165  
 Thr Thr Asp Ser Ile Gln Glu Pro Val Val Leu Phe His Ser Arg Phe  
 1170 1175 1180  
 Met Glu Leu Thr Arg Met Gln Gln Lys Lys Lys Glu Lys Asp Gln Lys  
 1185 1190 1195 1200  
 Pro Lys Glu Val Glu Lys Gln Glu Asp Thr Glu Asn His Pro Lys Thr  
 1205 1210 1215  
 Pro Glu Ser Ala Pro Glu Asn Lys Asp Ser Glu Leu Lys Thr Pro Pro  
 1220 1225 1230  
 Ser Val Gly Pro Pro Ser Val Thr Val Val Thr Leu Glu Ser Ala Pro  
 1235 1240 1245  
 Ser Ala Leu Glu Lys Thr Thr Gly Asp Lys Thr Val Glu Ala Pro Leu  
 1250 1255 1260  
 Val Thr Glu Glu Lys Thr Val Glu Pro Ala Thr Val Ser Glu Glu Ala  
 1265 1270 1275 1280  
 Lys Pro Ala Ser Glu Pro Ala Pro Ala Pro Val Glu Gln Leu Glu Gln  
 1285 1290 1295  
 Val Asp Leu Pro Pro Gly Ala Asp Pro Asp Lys Glu Ala Ala Met Met  
 1300 1305 1310  
 Pro Ala Gly Val Glu Glu Gly Ser Ser Gly Asp Gln Pro Pro Tyr Leu  
 1315 1320 1325  
 Asp Ala Lys Pro Pro Thr Pro Gly Ala Ser Phe Ser Gln Ala Glu Ser  
 1330 1335 1340  
 Asn Val Asp Pro Glu Pro Asp Ser Thr Gln Pro Leu Ser Lys Pro Ala  
 1345 1350 1355 1360  
 Gln Lys Ser Glu Glu Ala Asn Glu Pro Lys Ala Glu Lys Pro Asp Ala

3702

|   |      |      |
|---|------|------|
| 1795  | 1800 | 1805 |
| Glu Thr Glu Leu Ala Ala Ala Ile Gly Ser Ile Ile Asn Asp Ile Ser |      |      |
| 1810  | 1815 | 1820 |
| Gly Glu Pro Glu Asn Phe Pro Ala Pro Pro Pro Tyr Pro Gly Glu Ser |      |      |
| 1825  | 1830 | 1835 |
| Gln Thr Asp Leu Gln Pro Pro Ala Gly Ala Gln Ala Leu Gln Pro Ser |      | 1840 |
|   | 1845 | 1850 |
| Glu Glu Gly Met Glu Thr Asp Glu Ala Val Ser Gly Ile Leu Glu Thr |      | 1855 |
|   | 1860 | 1865 |
| Glu Ala Ala Thr Glu Ser Ser Arg Pro Pro Val Asn Ala Pro Asp Pro |      | 1870 |
|   | 1875 | 1880 |
| Ser Ala Gly Pro Thr Asp Thr Lys Glu Ala Arg Gly Asn Ser Ser Glu |      | 1885 |
|   | 1890 | 1895 |
| Thr Ser His Ser Val Pro Glu Ala Lys Gly Ser Lys Glu Val Glu Val |      | 1900 |
| 1905  | 1910 | 1915 |
| Thr Leu Val Arg Lys Asp Lys Gly Arg Gln Lys Thr Thr Arg Ser Arg |      | 1920 |
|   | 1925 | 1930 |
| Arg Lys Arg Asn Thr Asn Lys Lys Val Val Ala Pro Val Glu Ser His |      | 1935 |
|   | 1940 | 1945 |
| Val Pro Glu Ser Asn Gln Ala Gln Gly Glu Ser Pro Ala Ala Asn Glu |      | 1950 |
|   | 1955 | 1960 |
| Gly Thr Thr Val Gln His Pro Glu Ala Pro Gln Glu Glu Lys Gln Ser |      | 1965 |
|   | 1970 | 1975 |
| Glu Lys Pro His Ser Thr Pro Pro Gln Ser Cys Thr Ser Asp Leu Ser |      | 1980 |
| 1985  | 1990 | 1995 |
| Lys Ile Pro Ser Thr Glu Asn Ser Ser Gln Glu Ile Ser Val Glu Glu |      | 2000 |
|   | 2005 | 2010 |
| Arg Thr Pro Thr Lys Ala Ser Val Pro Pro Asp Leu Pro Pro Pro Pro |      | 2015 |
|   | 2020 | 2025 |
| Gln Pro Ala Pro Val Asp Glu Glu Pro Gln Ala Arg Phe Arg Val His |      | 2030 |
|   | 2035 | 2040 |
| Ser Ile Ile Glu Ser Asp Pro Val Thr Pro Pro Ser Asp Pro Ser Ile |      | 2045 |
|   | 2050 | 2055 |
| Pro Ile Pro Thr Leu Pro Ser Val Thr Ala Ala Lys Leu Ser Pro Pro |      | 2060 |
| 2065  | 2070 | 2075 |
| Val Ala Ser Gly Gly Ile Pro His Gln Ser Pro Pro Thr Lys Val Thr |      | 2080 |
|   | 2085 | 2090 |
| Glu Trp Ile Thr Arg Gln Glu Glu Pro Arg Ala Gln Ser Thr Pro Ser |      | 2095 |
|   | 2100 | 2105 |
| Pro Ala Leu Pro Pro Asp Thr Lys Ala Ser Asp Val Asp Thr Ser Ser |      | 2110 |
|   | 2115 | 2120 |
| Ser Thr Leu Arg Lys Ile Leu Met Asp Pro Lys Tyr Val Ser Ala Thr |      | 2125 |
|   | 2130 | 2135 |
| Ser Val Thr Ser Thr Ser Val Thr Thr Ala Ile Ala Glu Pro Val Ser |      | 2140 |
| 2145  | 2150 | 2155 |
| Ala Ala Pro Cys Leu His Glu Ala Pro Pro Pro Pro Val Asp Ser Lys |      | 2160 |
| 2165  | 2170 | 2175 |
| Lys Pro Leu Glu Glu Lys Thr Ala Pro Pro Val Thr Asn Asn Ser Glu |      |      |
|   | 2180 | 2185 |
| Ile Gln Ala Ser Glu Val Leu Val Ala Ala Asp Lys Glu Lys Val Ala |      | 2190 |
|   | 2195 | 2200 |
| Pro Val Ile Ala Pro Lys Ile Thr Ser Val Ile Ser Arg Met Pro Val |      | 2205 |
|   | 2210 | 2215 |
| Ser Ile Asp Leu Glu Asn Ser Gln Lys Ile Thr Leu Ala Lys Pro Ala |      | 2220 |

2225                      2230                      2235                      2240  
 Pro Gln Thr Leu Thr Gly Leu Val Ser Ala Leu Thr Gly Leu Val Asn  
                                  2245                      2250                      2255  
 Val Ser Leu Val Pro Val Asn Ala Leu Lys Gly Pro Val Lys Gly Ser  
                                  2260                      2265                      2270  
 Val Thr Thr Leu Lys Ser Leu Val Ser Thr Pro Ala Gly Pro Val Asn  
                                  2275                      2280                      2285  
 Val Leu Lys Gly Pro Val Asn Val Leu Thr Gly Pro Val Asn Val Leu  
                                  2290                      2295                      2300  
 Thr Thr Pro Val Asn Ala Thr Val Gly Thr Val Asn Ala Ala Pro Gly  
 2305                      2310                      2315                      2320  
 Thr Val Asn Ala Ala Ala Ser Ala Val Asn Ala Thr Ala Ser Ala Val  
                                  2325                      2330                      2335  
 Thr Val Thr Ala Gly Ala Val Thr Ala Ala Ser Gly Gly Val Thr Ala  
                                  2340                      2345                      2350  
 Thr Thr Gly Thr Val Thr Met Ala Gly Ala Val Ile Ala Pro Ser Thr  
                                  2355                      2360                      2365  
 Lys Cys Lys Gln Arg Ala Ser Ala Asn Glu Asn Ser Arg Phe His Pro  
                                  2370                      2375                      2380  
 Gly Ser Met Pro Val Ile Asp Asp Arg Pro Ala Asp Ala Gly Ser Gly  
 2385                      2390                      2395                      2400  
 Ala Gly Leu Arg Val Asn Thr Ser Glu Gly Val Val Leu Leu Ser Tyr  
                                  2405                      2410                      2415  
 Ser Gly Gln Lys Thr Glu Gly Pro Gln Arg Ile Ser Ala Lys Ile Ser  
                                  2420                      2425                      2430  
 Gln Ile Pro Pro Ala Ser Ala Met Asp Ile Glu Phe Gln Gln Ser Val  
                                  2435                      2440                      2445  
 Ser Lys Ser Gln Val Lys Pro Asp Ser Val Thr Ala Ser Gln Pro Pro  
                                  2450                      2455                      2460  
 Ser Lys Gly Pro Gln Ala Pro Ala Gly Tyr Ala Asn Val Ala Thr His  
 2465                      2470                      2475                      2480  
 Ser Thr Leu Val Leu Thr Ala Gln Thr Tyr Asn Ala Ser Pro Val Ile  
                                  2485                      2490                      2495  
 Ser Ser Val Lys Ala Asp Arg Pro Ser Leu Glu Lys Pro Glu Pro Ile  
                                  2500                      2505                      2510  
 His Leu Ser Val Ser Thr Pro Val Thr Gln Gly Gly Thr Val Lys Val  
                                  2515                      2520                      2525  
 Leu Thr Gln Gly Ile Asn Thr Pro Pro Val Leu Val His Asn Gln Leu  
                                  2530                      2535                      2540  
 Val Leu Thr Pro Ser Ile Val Thr Thr Asn Lys Lys Leu Ala Asp Pro  
 2545                      2550                      2555                      2560  
 Val Thr Leu Lys Ile Glu Thr Lys Val Leu Gln Pro Ala Asn Leu Gly  
                                  2565                      2570                      2575  
 Ser Thr Leu Thr Pro His His Pro Pro Ala Leu Pro Ser Lys Leu Pro  
                                  2580                      2585                      2590  
 Thr Glu Val Asn His Val Pro Ser Gly Pro Ser Ile Pro Ala Asp Arg  
                                  2595                      2600                      2605  
 Thr Val Ser His Leu Ala Ala Ala Lys Leu Asp Ala His Ser Pro Arg  
                                  2610                      2615                      2620  
 Pro Ser Gly Pro Gly Pro Ser Ser Phe Pro Arg Ala Ser His Pro Ser  
 2625                      2630                      2635                      2640  
 Ser Thr Ala Ser Thr Ala Leu Ser Thr Asn Ala Thr Val Met Leu Ala  
                                  2645                      2650                      2655  
 Ala Gly Ile Pro Val Pro Gln Phe Ile Ser Ser Ile His Pro Glu Gln

|   |                                     |                     |                 |  |      |
|---|-------------------------------------|---------------------|-----------------|--|------|
|   | 2660                                |                     | 2665            |  | 2670 |
| Ser Val   | Ile Met Pro Pro His                 | Ser Ile Thr Gln Thr | Val Ser Leu Ser |  |      |
| 2675  |                                     | 2680                | 2685            |  |      |
| His Leu   | Ser Gln Gly Glu Val Arg Met Asn Thr | Pro Thr Leu Pro Ser |                 |  |      |
| 2690  |                                     | 2695                | 2700            |  |      |
| Ile Thr Tyr Ser Ile Arg Pro Glu Ala Leu His Ser Pro Arg Ala Pro |                                     |                     |                 |  |      |
| 2705  |                                     | 2710                | 2715            |  | 2720 |
| Leu Gln Pro Gln Gln Ile Glu Val Arg Ala Pro Gln Arg Ala Ser Thr |                                     |                     |                 |  |      |
|   | 2725                                |                     | 2730            |  | 2735 |
| Pro Gln Pro Ala Pro Ala Gly Val Pro Ala Leu Ala Ser Gln His Pro |                                     |                     |                 |  |      |
|   | 2740                                |                     | 2745            |  | 2750 |
| Pro Glu Glu Glu Val His Tyr His Leu Pro Val Ala Arg Ala Thr Ala |                                     |                     |                 |  |      |
|   | 2755                                |                     | 2760            |  | 2765 |
| Pro Val Gln Ser Glu Val Leu Val Met Gln Ser Glu Tyr Arg Leu His |                                     |                     |                 |  |      |
|   | 2770                                |                     | 2775            |  | 2780 |
| Pro Tyr Thr Val Pro Arg Asp Val Arg Ile Met Val His Pro His Val |                                     |                     |                 |  |      |
| 2785  |                                     | 2790                | 2795            |  | 2800 |
| Thr Ala Val Ser Glu Gln Pro Arg Ala Ala Asp Gly Val Val Lys Val |                                     |                     |                 |  |      |
|   | 2805                                |                     | 2810            |  | 2815 |
| Pro Pro Ala Ser Lys Ala Pro Gln Gln Pro Gly Lys Glu Ala Ala Lys |                                     |                     |                 |  |      |
|   | 2820                                |                     | 2825            |  | 2830 |
| Thr Pro Asp Ala Lys Ala Ala Pro Thr Pro Thr Pro Ala Pro Val Pro |                                     |                     |                 |  |      |
|   | 2835                                |                     | 2840            |  | 2845 |
| Val Pro Val Pro Leu Pro Ala Pro Ala Pro Ala Pro His Gly Glu Ala |                                     |                     |                 |  |      |
|   | 2850                                |                     | 2855            |  | 2860 |
| Arg Ile Leu Thr Val Thr Pro Ser Asn Gln Leu Gln Gly Leu Pro Leu |                                     |                     |                 |  |      |
| 2865  |                                     | 2870                | 2875            |  | 2880 |
| Thr Pro Pro Val Val Val Thr His Gly Val Gln Ile Val His Ser Ser |                                     |                     |                 |  |      |
|   | 2885                                |                     | 2890            |  | 2895 |
| Gly Glu Leu Phe Gln Glu Tyr Arg Tyr Gly Asp Ile Arg Thr Tyr His |                                     |                     |                 |  |      |
|   | 2900                                |                     | 2905            |  | 2910 |
| Pro Pro Ala Gln Leu Thr His Thr Gln Phe Pro Ala Ala Ser Ser Val |                                     |                     |                 |  |      |
|   | 2915                                |                     | 2920            |  | 2925 |
| Gly Leu Pro Ser Arg Thr Lys Thr Ala Ala Gln Gly Pro Pro Pro Glu |                                     |                     |                 |  |      |
|   | 2930                                |                     | 2935            |  | 2940 |
| Gly Glu Pro Leu Gln Pro Pro Gln Pro Val Gln Ser Thr Gln Pro Ala |                                     |                     |                 |  |      |
| 2945  |                                     | 2950                | 2955            |  | 2960 |
| Gln Pro Ala Pro Pro Cys Pro Pro Ser Gln Leu Gly Gln Pro Gly Gln |                                     |                     |                 |  |      |
|   | 2965                                |                     | 2970            |  | 2975 |
| Pro Pro Ser Ser Lys Met Pro Gln Val Ser Gln Glu Ala Lys Gly Thr |                                     |                     |                 |  |      |
|   | 2980                                |                     | 2985            |  | 2990 |
| Gln Thr Gly Val Glu Gln Pro Arg Leu Pro Ala Gly Pro Ala Asn Arg |                                     |                     |                 |  |      |
|   | 2995                                |                     | 3000            |  | 3005 |
| Pro Pro Glu Pro His Thr Gln Val Gln Arg Ala Gln Ala Glu Thr Gly |                                     |                     |                 |  |      |
|   | 3010                                |                     | 3015            |  | 3020 |
| Pro Thr Ser Phe Pro Ser Pro Val Ser Val Ser Met Lys Pro Asp Leu |                                     |                     |                 |  |      |
| 3025  |                                     | 3030                | 3035            |  | 3040 |
| Pro Val Ser Leu Pro Thr Gln Thr Ala Pro Lys Gln Pro Leu Phe Val |                                     |                     |                 |  |      |
|   | 3045                                |                     | 3050            |  | 3055 |
| Pro Thr Thr Ser Gly Pro Ser Thr Pro Pro Gly Leu Val Leu Pro His |                                     |                     |                 |  |      |
|   | 3060                                |                     | 3065            |  | 3070 |
| Thr Glu Phe Gln Pro Ala Pro Lys Gln Asp Ser Ser Pro His Leu Thr |                                     |                     |                 |  |      |
|   | 3075                                |                     | 3080            |  | 3085 |
| Ser Gln Arg Pro Val Asp Met Val Gln Leu Leu Lys Lys Tyr Pro Ile |                                     |                     |                 |  |      |

3090                      3095                      3100  
 Val Trp Gln Gly Leu Leu Ala Leu Lys Asn Asp Thr Ala Ala Val Gln  
 3105                      3110                      3115                      3120  
 Leu His Phe Val Ser Gly Asn Asn Val Leu Ala His Arg Ser Leu Pro  
                     3125                      3130                      3135  
 Leu Ser Glu Gly Gly Pro Pro Leu Arg Ile Ala Gln Arg Met Arg Leu  
                     3140                      3145                      3150  
 Glu Ala Thr Gln Leu Glu Gly Val Ala Arg Arg Met Thr Leu Ala Ser  
                     3155                      3160                      3165  
 Ala Ser Val Glu Thr Asp Tyr Cys Leu Leu Leu Ala Leu Pro Cys Gly  
                     3170                      3175                      3180  
 Arg Asp Gln Glu Asp Val Val Ser Gln Thr Glu Ser Leu Lys Ala Ala  
 3185                      3190                      3195                      3200  
 Phe Ile Thr Tyr Leu Gln Ala Lys Gln Ala Ala Gly Ile Ile Asn Val  
                     3205                      3210                      3215  
 Pro Asn Pro Gly Ser Asn Gln Pro Ala Tyr Val Leu Gln Ile Phe Pro  
                     3220                      3225                      3230  
 Pro Cys Glu Phe Ser Glu Ser His Leu Ser Arg Leu Ala Pro Asp Leu  
                     3235                      3240                      3245  
 Leu Ala Ser Ile Ser Asn Ile Ser Pro His Leu Met Ile Val Ile Ala  
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 Ser Val  
 3265

<210> 4511  
 <211> 1375  
 <212> DNA  
 <213> Homo sapiens

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 180  
 gaaggtccca ttcagtaccg agatgaagaa gatgaagatg aaagctatca gagtgcactc  
 240  
 gccaacaaag tgaagaggaa agacacactg gcaatgaagt tgaaccacag acccagtgaa  
 300  
 ccagagttga acctgaattc ttggccttgt aaaagcaagg aggagtggaa tgaaatacgg  
 360  
 caccagattg gaaacacact gatccggcga ctgagtcaaa gaccaacacc agaagaacta  
 420  
 gaacaacgca atatattgca acctaaaaat gaagctgatc gtcaggcaga aaaacgagaa  
 480  
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 600  
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 660  
 ttaaatgaat ttaaaagctc cgagatggag gttcatgaag agagcaaaca ttttacacgc  
 720



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780  
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900  
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960  
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1020  
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1080  
agtttgacc attagcctta cctgccttgc cctgattgtg agacccaaat gtgtaggctc  
1140  
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1200  
tctgataaaa gagtctctac ctccagggaa agccttctta ccacactggc atatcagatg  
1260  
aaagcattgc actgtacctc tcgtaacaca gcaatacagt cctcttgagg cactcaagcc  
1320  
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1375

<210> 4512

<211> 244

<212> PRT

<213> Homo sapiens

<400> 4512

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Gly | Arg | Thr | Arg | Ser | Leu | Pro | Ile | Thr | Ile | Glu | Met | Leu | Lys | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Asp | Asp | Glu | Glu | Glu | Glu | Glu | Gln | Thr | Cys | Pro | Ser | Thr | Phe | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Glu | Met | Thr | Pro | Thr | Ser | Val | Ile | Pro | Lys | Leu | Pro | Gln | Cys | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |     |
| Arg | Glu | Glu | Glu | Glu | Lys | Glu | Ser | Asp | Ser | Asp | Ser | Glu | Gly | Pro | Ile |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gln | Tyr | Arg | Asp | Glu | Glu | Asp | Glu | Asp | Glu | Ser | Tyr | Gln | Ser | Ala | Leu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ala | Asn | Lys | Val | Lys | Arg | Lys | Asp | Thr | Leu | Ala | Met | Lys | Leu | Asn | His |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Arg | Pro | Ser | Glu | Pro | Glu | Leu | Asn | Leu | Asn | Ser | Trp | Pro | Cys | Lys | Ser |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Lys | Glu | Glu | Trp | Asn | Glu | Ile | Arg | His | Gln | Ile | Gly | Asn | Thr | Leu | Ile |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Arg | Arg | Leu | Ser | Gln | Arg | Pro | Thr | Pro | Glu | Glu | Leu | Glu | Gln | Arg | Asn |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ile | Leu | Gln | Pro | Lys | Asn | Glu | Ala | Asp | Arg | Gln | Ala | Glu | Lys | Arg | Glu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ile | Lys | Arg | Arg | Leu | Thr | Arg | Lys | Leu | Ser | Gln | Arg | Pro | Thr | Val | Ala |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Glu | Leu | Leu | Ala | Arg | Lys | Ile | Leu | Arg | Phe | Asn | Glu | Tyr | Val | Glu | Val |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Thr | Asp | Ala | Gln | Asp | Tyr | Asp | Arg | Arg | Ala | Asp | Lys | Pro | Trp | Thr | Lys |

|   |     |     |
|---|-----|-----|
| 195   | 200 | 205 |
| Leu Thr Pro Ala Asp Lys Ala Ala Ile Arg Lys Glu Leu Asn Glu Phe |     |     |
| 210   | 215 | 220 |
| Lys Ser Ser Glu Met Glu Val His Glu Glu Ser Lys His Phe Thr Arg |     |     |
| 225   | 230 | 235 |
| Tyr His Arg Pro   |     | 240 |

<210> 4513  
 <211> 545  
 <212> DNA  
 <213> Homo sapiens

<400> 4513  
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 120  
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 180  
 cctgtctgtg gcttagcacg tgcaccacag agccaaccag atcctctgta aacttttggg  
 240  
 cttctctggc cttcacggga cttctctgtg cagaaatcat tttcataatc atgagactct  
 300  
 tctcctcgga gtttcctttc aacaggtggg acatggatgc tgtgaactgc tcctgggaca  
 360  
 cgttctcact ggggtcccttc gccttcctctg tcaggctcgac cctccgcatg ccatcataca  
 420  
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 540  
 gatca  
 545

<210> 4514  
 <211> 122  
 <212> PRT  
 <213> Homo sapiens

<400> 4514  
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 20 25 30  
 Ser Met Ser His Leu Leu Lys Gly Asn Ser Glu Glu Lys Ser Leu Met  
 35 40 45  
 Ile Met Lys Met Ile Ser Ala Thr Glu Gly Pro Val Lys Ala Arg Glu  
 50 55 60  
 Val Gln Lys Phe Thr Glu Asp Leu Val Gly Ser Val Val His Val Leu  
 65 70 75 80  
 Ser His Arg Gln Glu Leu Arg Gly Trp Thr Gly Lys Glu Ala Pro Gly  
 85 90 95  
 Pro Asn Pro Arg Val Gln Val Leu Thr Ala Gln Leu Leu Ser Asp Met

100 105 110  
Lys Leu Gln Gly Lys Cys Ala Trp Thr Arg  
115 120

<210> 4515  
<211> 3207  
<212> DNA  
<213> Homo sapiens

<400> 4515  
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120  
tcggaacctg gccggggccc tccaccgcgc ccgtgggtccc ggtgggtgag ccccggtggc  
180  
agcgacgcgc acaactttgc gatggagttt gtgcgggcgc tgtggctggg cctggcgctg  
240  
gcgctggggc cgggggtccg gggggggcac cctcagccgt gcggcgctcc ggcgcgctc  
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1320

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2940

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<211> 901

<212> PRT

<213> Homo sapiens

<400> 4516

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| Met | Glu | Phe | Val | Arg | Ala | Leu | Trp | Leu | Gly | Leu | Ala | Leu | Ala | Leu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     | 15  |     |     |     |
| Pro | Gly | Ser | Ala | Gly | Gly | His | Pro | Gln | Pro | Cys | Gly | Val | Leu | Ala | Arg |
|     |     |     | 20  |     |     |     | 25  |     |     |     | 30  |     |     |     |     |
| Leu | Gly | Gly | Ser | Val | Arg | Leu | Gly | Ala | Leu | Leu | Pro | Arg | Ala | Pro | Leu |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Ala | Arg | Ala | Arg | Ala | Arg | Ala | Ala | Leu | Ala | Arg | Ala | Ala | Leu | Ala | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Arg | Leu | Pro | His | Asn | Leu | Ser | Leu | Glu | Leu | Val | Val | Ala | Ala | Pro | Pro |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |
| Ala | Arg | Asp | Pro | Ala | Ser | Leu | Thr | Arg | Gly | Leu | Cys | Gln | Ala | Leu | Val |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Pro | Pro | Gly | Val | Ala | Ala | Leu | Leu | Ala | Phe | Pro | Glu | Ala | Arg | Pro | Glu |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Leu | Gln | Leu | His | Phe | Leu | Ala | Ala | Thr | Glu | Thr | Pro | Val | Leu |     |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Ser | Leu | Leu | Arg | Arg | Glu | Ala | Arg | Ala | Pro | Leu | Gly | Ala | Pro | Asn | Pro |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | His | Leu | Gln | Leu | His | Trp | Ala | Ser | Pro | Leu | Glu | Thr | Leu | Leu | Asp |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Val | Leu | Val | Ala | Val | Leu | Gln | Ala | His | Ala | Trp | Glu | Asp | Val | Gly | Leu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Ala | Leu | Cys | Arg | Thr | Gln | Asp | Pro | Gly | Gly | Leu | Val | Ala | Leu | Trp | Thr |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ser | Arg | Ala | Gly | Arg | Pro | Pro | Gln | Leu | Val | Leu | Asp | Leu | Ser | Arg | Arg |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Asp | Thr | Gly | Asp | Ala | Gly | Leu | Arg | Ala | Arg | Leu | Ala | Pro | Met | Ala | Ala |
|     | 210 |     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |
| Pro | Val | Gly | Gly | Glu | Ala | Pro | Val | Pro | Ala | Ala | Val | Leu | Leu | Gly | Cys |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     | 240 |     |
| Asp | Ile | Ala | Arg | Ala | Arg | Arg | Val | Leu | Glu | Ala | Val | Pro | Pro | Gly | Pro |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| His | Trp | Leu | Leu | Gly | Thr | Pro | Leu | Pro | Pro | Lys | Ala | Leu | Pro | Thr | Ala |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     |     | 270 |     |
| Gly | Leu | Pro | Pro | Gly | Leu | Leu | Ala | Leu | Gly | Glu | Val | Ala | Arg | Pro | Pro |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |
| Leu | Glu | Ala | Ala | Ile | His | Asp | Ile | Val | Gln | Leu | Val | Ala | Arg | Ala | Leu |

|                         |   |     |  |     |
|-------------------------|---|-----|--|-----|
| 290                     |   | 295 |  | 300 |
| Gly Ser Ala Ala Gln Val | Gln Pro Lys Arg Ala Leu Leu Pro Ala Pro |     |  |     |
| 305                     | 310                                     | 315 |  | 320 |
| Val Asn Cys Gly Asp Leu | Gln Pro Ala Gly Pro Glu Ser Pro Gly Arg |     |  |     |
|                         | 325                                     | 330 |  | 335 |
| Phe Leu Ala Arg Phe Leu | Ala Asn Thr Ser Phe Gln Gly Arg Thr Gly |     |  |     |
|                         | 340                                     | 345 |  | 350 |
| Pro Val Trp Val Thr Gly | Ser Ser Gln Val His Met Ser Arg His Phe |     |  |     |
|                         | 355                                     | 360 |  | 365 |
| Lys Val Trp Ser Leu Arg | Arg Asp Pro Arg Gly Ala Pro Ala Trp Ala |     |  |     |
|                         | 370                                     | 375 |  | 380 |
| Thr Val Gly Ser Trp Arg | Tyr Gly Gln Leu Asp Leu Glu Pro Gly Gly |     |  |     |
| 385                     | 390                                     | 395 |  | 400 |
| Ala Ser Ala Trp Pro Pro | Pro Gln Gly Ala Gln Val Arg Pro Lys     |     |  |     |
|                         | 405                                     | 410 |  | 415 |
| Leu Arg Val Val Thr Leu | Leu Glu His Pro Phe Val Phe Ala Arg Asp |     |  |     |
|                         | 420                                     | 425 |  | 430 |
| Pro Asp Glu Asp Gly Gln | Cys Pro Ala Gly Gln Leu Cys Leu Asp Pro |     |  |     |
|                         | 435                                     | 440 |  | 445 |
| Gly Thr Asn Asp Ser Ala | Thr Leu Asp Ala Leu Phe Ala Ala Leu Ala |     |  |     |
|                         | 450                                     | 455 |  | 460 |
| Asn Gly Ser Ala Pro Arg | Ala Leu Arg Lys Cys Cys Tyr Gly Tyr Cys |     |  |     |
| 465                     | 470                                     | 475 |  | 480 |
| Ile Asp Leu Leu Glu Arg | Leu Ala Glu Asp Thr Pro Phe Asp Phe Glu |     |  |     |
|                         | 485                                     | 490 |  | 495 |
| Leu Tyr Leu Val Gly Asp | Gly Lys Tyr Gly Ala Leu Arg Asp Gly Arg |     |  |     |
|                         | 500                                     | 505 |  | 510 |
| Trp Thr Gly Leu Val Gly | Asp Leu Leu Ala Gly Arg Ala His Met Ala |     |  |     |
|                         | 515                                     | 520 |  | 525 |
| Val Thr Ser Phe Ser Ile | Asn Ser Ala Arg Ser Gln Val Val Asp Phe |     |  |     |
|                         | 530                                     | 535 |  | 540 |
| Thr Ser Pro Phe Phe Ser | Thr Ser Leu Gly Ile Met Val Arg Ala Arg |     |  |     |
| 545                     | 550                                     | 555 |  | 560 |
| Asp Thr Ala Ser Pro Ile | Gly Ala Phe Met Trp Pro Leu His Trp Ser |     |  |     |
|                         | 565                                     | 570 |  | 575 |
| Thr Trp Leu Gly Val Phe | Ala Ala Leu His Leu Thr Ala Leu Phe Leu |     |  |     |
|                         | 580                                     | 585 |  | 590 |
| Thr Val Tyr Glu Trp Arg | Ser Pro Tyr Gly Leu Thr Pro Arg Gly Arg |     |  |     |
|                         | 595                                     | 600 |  | 605 |
| Asn Arg Ser Thr Val Phe | Ser Tyr Ser Ser Ala Leu Asn Leu Cys Tyr |     |  |     |
|                         | 610                                     | 615 |  | 620 |
| Ala Ile Leu Phe Arg Arg | Thr Val Ser Ser Lys Thr Pro Lys Cys Pro |     |  |     |
| 625                     | 630                                     | 635 |  | 640 |
| Thr Gly Arg Leu Leu Met | Asn Leu Trp Ala Ile Phe Cys Leu Leu Val |     |  |     |
|                         | 645                                     | 650 |  | 655 |
| Leu Ser Ser Tyr Thr Ala | Asn Leu Ala Val Met Val Gly Asp Lys     |     |  |     |
|                         | 660                                     | 665 |  | 670 |
| Thr Phe Glu Glu Leu Ser | Gly Ile His Asp Pro Lys Leu His His Pro |     |  |     |
|                         | 675                                     | 680 |  | 685 |
| Ala Gln Gly Phe Arg Phe | Gly Thr Val Trp Glu Ser Ser Ala Glu Ala |     |  |     |
|                         | 690                                     | 695 |  | 700 |
| Tyr Ile Lys Lys Ser Phe | Pro Asp Met His Ala His Met Arg Arg His |     |  |     |
| 705                     | 710                                     | 715 |  | 720 |
| Ser Ala Pro Thr Thr Pro | Arg Gly Val Ala Met Leu Thr Ser Asp Pro |     |  |     |

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<211> 2275
<212> DNA
<213> Homo sapiens
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&lt;210&gt; 4518



&lt;211&gt; 650

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4518

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          20           25           30
Val Ser Ser Leu Leu Leu Gln Glu Glu Glu Pro Leu Ala Gly Gly Lys
        35           40           45
Pro Gly Ala Asp Gly Gly Ser Leu Glu Ala Val Arg Leu Gly Pro Ser
 50           55           60
Ser Gly Leu Leu Val Asp Trp Leu Glu Met Leu Asp Pro Glu Val Val
65           70           75           80
Ser Ser Cys Pro Asp Leu Gln Leu Arg Leu Leu Phe Ser Arg Arg Lys
          85           90           95
Gly Lys Gly Gln Ala Gln Val Pro Ser Phe Arg Pro Tyr Leu Leu Thr
        100          105          110
Leu Phe Thr His Gln Ser Ser Trp Pro Thr Leu His Gln Cys Ile Arg
      115           120           125
Val Leu Leu Gly Lys Ser Arg Glu Gln Arg Phe Asp Pro Ser Ala Ser
    130           135           140
Leu Asp Phe Leu Trp Ala Cys Ile His Val Pro Arg Ile Trp Gln Gly
145           150           155           160
Arg Asp Gln Arg Thr Pro Gln Lys Arg Arg Glu Glu Leu Val Leu Arg
      165           170           175
Val Gln Gly Pro Glu Leu Ile Ser Leu Val Glu Leu Ile Leu Ala Glu
    180           185           190
Ala Glu Thr Arg Ser Gln Asp Gly Asp Thr Ala Ala Cys Ser Leu Ile
    195           200           205
Gln Ala Arg Leu Pro Leu Leu Ser Cys Cys Cys Gly Asp Asp Glu
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Ser Val Arg Lys Val Thr Glu His Leu Ser Gly Cys Ile Gln Gln Trp
225           230           235           240
Gly Asp Ser Val Leu Gly Arg Arg Cys Arg Asp Leu Leu Leu Gln Leu
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Tyr Leu Gln Arg Pro Glu Leu Arg Val Pro Val Pro Glu Val Leu Leu
    260           265           270
His Ser Glu Gly Ala Ala Ser Ser Ser Val Cys Lys Leu Asp Gly Leu
    275           280           285
Ile His Arg Phe Ile Thr Leu Leu Ala Asp Thr Ser Asp Ser Arg Ala
    290           295           300
Leu Glu Asn Arg Gly Ala Asp Ala Ser Met Ala Cys Arg Lys Leu Ala
305           310           315           320
Val Ala His Pro Leu Leu Leu Leu Arg His Leu Pro Met Ile Ala Ala
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Leu Leu His Gly Arg Thr His Leu Asn Phe Gln Glu Phe Arg Gln Gln
    340           345           350
Asn His Leu Ser Cys Phe Leu His Val Leu Gly Leu Leu Glu Leu Leu
    355           360           365
Gln Pro His Val Phe Arg Ser Glu His Gln Gly Ala Leu Trp Asp Cys
    370           375           380
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385                                      390                                      395                                      400  
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    420                                      425                                      430  
 Asp Pro Leu His Asp Leu Ser Phe Asp Asn Ser Asp Leu Val Met Leu  
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 Lys Ser Leu Leu Ala Gly Leu Ser Leu Pro Ser Arg Asp Asp Arg Thr  
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 Asp Arg Gly Leu Asp Glu Glu Gly Glu Glu Glu Ser Ser Ala Gly Ser  
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 Met Ala Pro Tyr Met Lys Arg Leu Ser Arg Gly Gln Thr Val Glu Gly  
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 Glu Ser Gly Pro Ala Ser Pro Thr Pro Asp Leu Leu Glu Val Leu Ser  
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 Ser Thr Asn Leu Gln Arg Leu Met Ser Ser Ala Glu Glu Cys Cys Arg  
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 Asp Phe Glu Val Val Gln Thr Ala Leu Arg Asn Leu Pro Glu Tyr Ala  
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&lt;210&gt; 4519

&lt;211&gt; 2326

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4519

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<211> 617

<212> PRT

<213> Homo sapiens

<400> 4520

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| Pro | Trp | Gly | Arg | Cys | Met | Gly | Asp | Glu | Cys | Gly | Pro | Gly | Gly | Ile | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Arg | Ala | Val | Trp | Cys | Ala | His | Val | Glu | Gly | Trp | Thr | Thr | Leu | His |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Asn | Cys | Lys | Gln | Ala | Glu | Arg | Pro | Asn | Asn | Gln | Gln | Asn | Cys | Phe |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Lys | Val | Cys | Asp | Trp | His | Lys | Glu | Leu | Tyr | Asp | Trp | Arg | Leu | Gly | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Trp | Asn | Gln | Cys | Gln | Pro | Val | Ile | Ser | Lys | Ser | Leu | Glu | Lys | Pro | Leu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Glu | Cys | Ile | Lys | Gly | Glu | Glu | Gly | Ile | Gln | Val | Arg | Glu | Ile | Ala | Cys |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ile | Gln | Lys | Asp | Lys | Asp | Ile | Pro | Ala | Glu | Asp | Ile | Ile | Cys | Glu | Tyr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Phe | Glu | Pro | Lys | Pro | Leu | Leu | Glu | Gln | Ala | Cys | Leu | Ile | Pro | Cys | Gln |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Gln | Asp | Cys | Ile | Val | Ser | Glu | Phe | Ser | Ala | Trp | Ser | Glu | Cys | Ser | Lys |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Thr | Cys | Gly | Ser | Gly | Leu | Gln | His | Arg | Thr | Arg | His | Val | Val | Ala | Pro |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Pro | Gln | Phe | Gly | Gly | Ser | Gly | Cys | Pro | Asn | Leu | Thr | Glu | Phe | Gln | Val |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Cys | Gln | Ser | Ser | Pro | Cys | Glu | Ala | Glu | Glu | Leu | Arg | Tyr | Ser | Leu | His |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Val | Gly | Pro | Trp | Ser | Thr | Cys | Ser | Met | Pro | His | Ser | Arg | Gln | Val | Arg |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Gln | Ala | Arg | Arg | Arg | Gly | Lys | Asn | Lys | Glu | Arg | Glu | Lys | Asp | Arg | Ser |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Lys | Gly | Val | Lys | Asp | Pro | Glu | Ala | Arg | Glu | Leu | Ile | Lys | Lys | Lys | Arg |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Asn | Arg | Asn | Arg | Gln | Asn | Arg | Gln | Glu | Asn | Lys | Tyr | Trp | Asp | Ile | Gln |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ile | Gly | Tyr | Gln | Thr | Arg | Glu | Val | Met | Cys | Ile | Asn | Lys | Thr | Gly | Lys |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ala | Ala | Asp | Leu | Ser | Phe | Cys | Gln | Gln | Glu | Lys | Leu | Pro | Met | Thr | Phe |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Gln | Ser | Cys | Val | Ile | Thr | Lys | Glu | Cys | Gln | Val | Ser | Glu | Trp | Ser | Glu |

|   |  |     |  |     |
|---|--|-----|--|-----|
| 290   |  | 295 |  | 300 |
| Trp Ser Pro Cys Ser Lys Thr Cys His Asp Met Val Ser Pro Ala Gly |  |     |  |     |
| 305   |  | 310 |  | 315 |
| Thr Arg Val Arg Thr Arg Thr Ile Arg Gln Phe Pro Ile Gly Ser Glu |  |     |  |     |
|   |  | 325 |  | 330 |
| Lys Glu Cys Pro Glu Phe Glu Glu Lys Glu Pro Cys Leu Ser Gln Gly |  |     |  |     |
|   |  | 340 |  | 345 |
| Asp Gly Val Val Pro Cys Ala Thr Tyr Gly Trp Arg Thr Thr Glu Trp |  |     |  |     |
|   |  | 355 |  | 360 |
| Thr Glu Cys Arg Val Asp Pro Leu Leu Ser Gln Gln Asp Lys Arg Arg |  |     |  |     |
|   |  | 370 |  | 375 |
| Gly Asn Gln Thr Ala Leu Cys Gly Gly Gly Ile Gln Thr Arg Glu Val |  |     |  |     |
| 385   |  | 390 |  | 395 |
| Tyr Cys Val Gln Ala Asn Glu Asn Leu Leu Ser Gln Leu Ser Thr His |  |     |  |     |
|   |  | 405 |  | 410 |
| Lys Asn Lys Glu Ala Ser Lys Pro Met Asp Leu Lys Leu Cys Thr Gly |  |     |  |     |
|   |  | 420 |  | 425 |
| Pro Ile Pro Asn Thr Thr Gln Leu Cys His Ile Pro Cys Pro Thr Glu |  |     |  |     |
|   |  | 435 |  | 440 |
| Cys Glu Val Ser Pro Trp Ser Ala Trp Gly Pro Cys Thr Tyr Glu Asn |  |     |  |     |
|   |  | 450 |  | 455 |
| Cys Asn Asp Pro Gln Gly Lys Lys Gly Phe Lys Leu Arg Lys Arg Arg |  |     |  |     |
| 465   |  | 470 |  | 475 |
| Ile Thr Asn Glu Pro Thr Gly Gly Ser Gly Leu Thr Gly Asn Cys Pro |  |     |  |     |
|   |  | 485 |  | 490 |
| His Leu Leu Glu Ala Ile Pro Cys Glu Glu Pro Ala Cys Tyr Asp Trp |  |     |  |     |
|   |  | 500 |  | 505 |
| Lys Ala Val Arg Leu Gly Asp Cys Glu Pro Asp Asn Gly Lys Glu Cys |  |     |  |     |
|   |  | 515 |  | 520 |
| Gly Pro Gly Thr Gln Val Gln Glu Val Val Cys Ile Asn Ser Asp Gly |  |     |  |     |
|   |  | 530 |  | 535 |
| Glu Glu Val Asp Arg Gln Leu Cys Arg Asp Ala Ile Phe Pro Ile Pro |  |     |  |     |
| 545   |  | 550 |  | 555 |
| Val Ala Cys Asp Ala Pro Cys Pro Lys Asp Cys Val Leu Ser Thr Trp |  |     |  |     |
|   |  | 565 |  | 570 |
| Ser Thr Trp Ser Ser Cys Ser His Thr Cys Ser Gly Lys Thr Thr Glu |  |     |  |     |
|   |  | 580 |  | 585 |
| Gly Lys Gln Ile Arg Ala Arg Ser Ile Leu Ala Tyr Ala Gly Glu Glu |  |     |  |     |
|   |  | 595 |  | 600 |
| Gly Glu Ser Pro Ala Ser Asp Ala Ile                             |  |     |  |     |
| 610   |  | 615 |  |     |

&lt;210&gt; 4521

&lt;211&gt; 1071

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4521

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60

tcagaagaaa tgaaataatg ccttcaaacg actgaggaaa aataattatt aacctataat  
120

ttataccaat ataaacaatt actcaggaaa aaaagaaaat aaaaacttgc aagggctaaa  
180

ataacttgct taccacaaaa gatgcttgct ctaagaactg tgaagggatt caagaggaaa  
 240  
 agtacacca gagagggctc atacatgtcc tctccccctc ctcctccacc accaggacac  
 300  
 acagaaaactg cctcctcttt tcagccctct cccttctcag ctgactttga gctacaaata  
 360  
 tcccttctct acttgagag ccccathttca ttacaggaat ttgctttgag ttttattatc  
 420  
 atttttagtct atgtcttaga ttgggctgct ataacaaggt gccataggct gagcggctta  
 480  
 aacaacaaac actcatatcc cacagttaca gaggctgaga agcctggggg caaggtacca  
 540  
 gcatggctctg attctgttct ggaggctggg aaatccaaga tggaagcact ggtaggtttg  
 600  
 gtgtctggga gggcttctct ctgcttccaa gatggtgcct tgtcgctgca tcttccagag  
 660  
 ggaaggaatg ctgtgtcctt gcagcacaga agaaacacat ctgaaaagaa atcaagcaga  
 720  
 aaagttgaaa ataaagagat ggaatatata tatgaaaact actacatata ggaagggatg  
 780  
 tagcaaagac acagagagaa tataatttaa ggcaaaaagc ttcaatagga tttcaaagca  
 840  
 aaccttgcac actaaaaaaa ggaaacaaaa aataaaccaa aagaaaccga aaaccatgaa  
 900  
 cttgcaggag aattttccaa agccgtaatt ataatgagag tgtttttaag tctataagaa  
 960  
 attaatatat caaacaaata aagattaata agaatttgga atttgtatga aatggcaaa  
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 1071

<210> 4522

<211> 189

<212> PRT

<213> Homo sapiens

<400> 4522

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Ala | Leu | Arg | Thr | Val | Lys | Gly | Phe | Lys | Arg | Lys | Ser | Thr | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Glu | Gly | Ser | Tyr | Met | Ser | Ser | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Gly |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| His | Thr | Glu | Thr | Ala | Ser | Ser | Phe | Gln | Pro | Ser | Pro | Phe | Ser | Ala | Asp |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Phe | Glu | Leu | Gln | Ile | Ser | Leu | Leu | Tyr | Leu | Glu | Ser | Pro | Ile | Ser | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Gln | Glu | Phe | Ala | Leu | Ser | Phe | Ile | Ile | Ile | Leu | Val | Tyr | Val | Leu | Asp |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Trp | Ala | Ala | Ile | Thr | Arg | Cys | His | Arg | Leu | Ser | Gly | Leu | Asn | Asn | Lys |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     | 95  |     |     |
| His | Ser | Tyr | Pro | Thr | Val | Thr | Glu | Ala | Glu | Lys | Pro | Gly | Val | Lys | Val |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     | 110 |     |     |     |
| Pro | Ala | Trp | Ser | Asp | Ser | Val | Leu | Glu | Ala | Gly | Lys | Ser | Lys | Met | Glu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ala | Leu | Val | Gly | Leu | Val | Ser | Gly | Arg | Ala | Ser | Leu | Cys | Phe | Gln | Asp |

|   |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|
| 130   |     | 135 |     | 140 |     |
| Gly Ala Leu Ser Leu His Leu Pro Glu Gly Arg Asn Ala Val Ser Leu |     |     |     |     |     |
| 145   |     | 150 |     | 155 | 160 |
| Gln His Arg Arg Asn Thr Ser Glu Lys Lys Ser Ser Arg Lys Val Glu |     |     |     |     |     |
|   | 165 |     | 170 |     | 175 |
| Asn Lys Glu Met Glu Tyr Ile Tyr Glu Asn Tyr Tyr Ile             |     |     |     |     |     |
| 180   |     | 185 |     |     |     |

<210> 4523  
 <211> 1022  
 <212> DNA  
 <213> Homo sapiens

<400> 4523  
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 120  
 cgtgccagcg aggctgtcct ctgggaggca ctacgcaaga tgggactgcg ccctgggggtg  
 180  
 aggcacccat tcctcggcga tctgaggaag ctcatcacag atgactttgt gaagcagaag  
 240  
 tacctggaat acaagaagat cccaacagc aaccacctg agtatgaatt cctctggggc  
 300  
 ctgcgagccc gccatgagac cagcaagatg agggtcctga gattcatcgc ccagaatcag  
 360  
 aaccgagacc cccgggaatg gaaggctcat ttcttggagg ctgtggatga tgctttcaag  
 420  
 acaatggatg tggatatggc cgaggaacat gccagggccc agatgagggc ccagatgaat  
 480  
 atcggggatg aagcgtgat tggacggtgg agctgggatg acatacaagt cgagctcctg  
 540  
 acctgggatg aggacggaga ttttggcgat gcctgggcca ggatcccctt tgctttctgg  
 600  
 gccagatacc atcagtacat tctgaatagc aaccgtgcca acaggagggc cacgtggaga  
 660  
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 720  
 accagctcca ccatccggac cagaaatgct gccagagctg gcgccagctt cttctcctgg  
 780  
 atccagtagg agtttcggca ccgttgacga actgcagcga tcttactggc caagccagag  
 840  
 cgctcctct cagattcctt ctgcacacag caccctaggc ggcttcttcc tgtcagtcgg  
 900  
 aggtggcatg caagatgaag ctctctttgc tcttcctgct ttcattttgt gcttttcctt  
 960  
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 1020  
 aa  
 1022

<210> 4524  
 <211> 262  
 <212> PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4524

Ala Leu Tyr Ile Leu Val Cys Thr Arg Asp Ser Ser Ala Arg Leu Leu  
 1 5 10 15  
 Gly Lys Thr Lys Asp Thr Pro Arg Leu Ser Leu Xaa Leu Val Ile Leu  
 20 25 30  
 Gly Val Ile Phe Met Asn Gly Asn Arg Ala Ser Glu Ala Val Leu Trp  
 35 40 45  
 Glu Ala Leu Arg Lys Met Gly Leu Arg Pro Gly Val Arg His Pro Phe  
 50 55 60  
 Leu Gly Asp Leu Arg Lys Leu Ile Thr Asp Asp Phe Val Lys Gln Lys  
 65 70 75 80  
 Tyr Leu Glu Tyr Lys Lys Ile Pro Asn Ser Asn Pro Pro Glu Tyr Glu  
 85 90 95  
 Phe Leu Trp Gly Leu Arg Ala Arg His Glu Thr Ser Lys Met Arg Val  
 100 105 110  
 Leu Arg Phe Ile Ala Gln Asn Gln Asn Arg Asp Pro Arg Glu Trp Lys  
 115 120 125  
 Ala His Phe Leu Glu Ala Val Asp Asp Ala Phe Lys Thr Met Asp Val  
 130 135 140  
 Asp Met Ala Glu Glu His Ala Arg Ala Gln Met Arg Ala Gln Met Asn  
 145 150 155 160  
 Ile Gly Asp Glu Ala Leu Ile Gly Arg Trp Ser Trp Asp Asp Ile Gln  
 165 170 175  
 Val Glu Leu Leu Thr Trp Asp Glu Asp Gly Asp Phe Gly Asp Ala Trp  
 180 185 190  
 Ala Arg Ile Pro Phe Ala Phe Trp Ala Arg Tyr His Gln Tyr Ile Leu  
 195 200 205  
 Asn Ser Asn Arg Ala Asn Arg Arg Ala Thr Trp Arg Ala Gly Val Ser  
 210 215 220  
 Ser Gly Thr Asn Gly Gly Ala Ser Thr Ser Val Leu Asp Gly Pro Ser  
 225 230 235 240  
 Thr Ser Ser Thr Ile Arg Thr Arg Asn Ala Ala Arg Ala Gly Ala Ser  
 245 250 255  
 Phe Phe Ser Trp Ile Gln  
 260

&lt;210&gt; 4525

&lt;211&gt; 1731

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4525

nngaaccatg gcattctcca ggctctgacc acagaagctt atgaatggga gccacgtgtt  
 60  
 gtgagtacag aggtgggtcag agcccaagaa gaatgggaag ctgtggacac catccagcca  
 120  
 gagacagga gccaaagctag ctcagagcag cctgggcagc taatctcctt cagtgaggcc  
 180  
 ctgcagcact tccagactgt ggacctttcc cccttcaaga aaagaatcca gccaaactatt  
 240  
 cgaaggactg ggctcgccgc cctccgacac tacctcttcg ggccctccaaa gctccaccag  
 300



cgcccttcggg aagaaaggga cttggctcctg accattgctc agtgtggcct ggatagccaa  
360  
gacccagtgc atggccgagt cctccagacc atctataaga agctgaccgg ctccaagttt  
420  
gactgtgccc ttcattggaaa ccactgggag gacctgggct ttcagggagc gaatccagcc  
480  
acagacctga gaggcgcagg cttccttgcc ctccctgcac tgctctacct agtgatggac  
540  
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600  
ttccctttct gtttgatgtc cgtgaacac acccacattg ccatccaggc cttgagagag  
660  
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720  
tatgccgcca cattcctcca cctcgcacat gtctggagga cacagcggaa gaccatctca  
780  
gactcgggct ttgtcctcaa aggtgtgctc tttcttctgg ggaggcctag gctgaatgca  
840  
cagtgtccca ggtccagaga gcccaagggtg gttgctagac tggttttggc tgcagttctt  
900  
ccccatccac acttttctcaa attccagctt accaaaatct ccatcaccca cccctggag  
960  
tctgctagtt ctcctttctc tgccctgact gtcgcccttt tctggtctta tacttatgac  
1020  
aagcatatat tctgatcaaa aattgggagc cagggtccaa tagttggact attcaaagtt  
1080  
gcaattgtgc agacaaggta gagtgtgtgg tccctgtggc ttagctggc tccctagcct  
1140  
acctctctgg tgatctctcc atctgaggct ccttcacttt ctctccatgg gataggggtt  
1200  
gggggtactc cctagagctg ctaggcttga ggccttgact gttgtgtcac ccagagcccc  
1260  
ctcaagcctt ctgctcccca attctctctg ttgcagagtt ggaagtattg gccaagaaga  
1320  
gccacggcg ggctgtcaa gaccctggag ctgtacttgg ccagggtgtc aaagggacag  
1380  
gcctccttgt tgggagcaca gaagtgtat gggccagaag cccctccctt caaggatctc  
1440  
accttcacag gtgagagtga cctgcagtct cactcatccg aaggcgtatg gctgatctga  
1500  
cctccgagat gaatggaggc ttaaaggctg agctgcaggg gctttcaggg ggtcagtgga  
1560  
gccatgtcag gagcctggcc aggccgcacc ccttgctgtc tcagcagatg ggatatagga  
1620  
agctcctggg cttagctgtg ggaagccaag taccctcacc ggcattgggac atgaggggca  
1680  
gctagacttc acccccttcc cgcagacctg cctccagagc aaggagaatt c  
1731

&lt;210&gt; 4526

&lt;211&gt; 344

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4526

```

Xaa Asn His Gly Ile Leu Gln Ala Leu Thr Thr Glu Ala Tyr Glu Trp
 1           5           10           15
Glu Pro Arg Val Val Ser Thr Glu Val Val Arg Ala Gln Glu Glu Trp
          20           25           30
Glu Ala Val Asp Thr Ile Gln Pro Glu Thr Gly Ser Gln Ala Ser Ser
          35           40           45
Glu Gln Pro Gly Gln Leu Ile Ser Phe Ser Glu Ala Leu Gln His Phe
          50           55           60
Gln Thr Val Asp Leu Ser Pro Phe Lys Lys Arg Ile Gln Pro Thr Ile
65           70           75           80
Arg Arg Thr Gly Leu Ala Ala Leu Arg His Tyr Leu Phe Gly Pro Pro
          85           90           95
Lys Leu His Gln Arg Leu Arg Glu Glu Arg Asp Leu Val Leu Thr Ile
          100          105          110
Ala Gln Cys Gly Leu Asp Ser Gln Asp Pro Val His Gly Arg Val Leu
          115          120          125
Gln Thr Ile Tyr Lys Lys Leu Thr Gly Ser Lys Phe Asp Cys Ala Leu
          130          135          140
His Gly Asn His Trp Glu Asp Leu Gly Phe Gln Gly Ala Asn Pro Ala
145          150          155          160
Thr Asp Leu Arg Gly Ala Gly Phe Leu Ala Leu Leu His Leu Leu Tyr
          165          170          175
Leu Val Met Asp Ser Lys Thr Leu Pro Met Ala Gln Glu Ile Phe Arg
          180          185          190
Leu Ser Arg His His Ile Gln Gln Phe Pro Phe Cys Leu Met Ser Val
          195          200          205
Asn Ile Thr His Ile Ala Ile Gln Ala Leu Arg Glu Glu Cys Leu Ser
          210          215          220
Arg Glu Cys Asn Arg Gln Gln Lys Val Ile Pro Val Val Asn Ser Phe
225          230          235          240
Tyr Ala Ala Thr Phe Leu His Leu Ala His Val Trp Arg Thr Gln Arg
          245          250          255
Lys Thr Ile Ser Asp Ser Gly Phe Val Leu Lys Gly Val Leu Phe Leu
          260          265          270
Leu Gly Arg Pro Arg Leu Asn Ala Gln Cys Pro Arg Ser Arg Glu Pro
          275          280          285
Lys Val Val Ala Arg Leu Val Leu Ala Ala Val Leu Pro His Pro His
          290          295          300
Phe Leu Lys Phe Gln Leu Thr Lys Ile Ser Ile Thr His Pro Leu Glu
305          310          315          320
Ser Ala Ser Ser Pro Phe Ser Ala Leu Thr Val Ala Leu Phe Trp Ser
          325          330          335
Tyr Thr Tyr Asp Lys His Ile Phe
          340

```

&lt;210&gt; 4527

&lt;211&gt; 885

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4527

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nnntttttttt tttttttttt tttttttttt tttttttttt tttttttttg cagagacatg
60

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gctgcattta ttgttcccag cccggcgaga aggtgttccc agaaagggttc cttgggtcac  
 120  
 ctgcccaccc agccttggct ctgggctgcc atgtcccccac gggggcagga gagaggcaca  
 180  
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 240  
 tcttcacctg ggaccctcgg ccaggctggg acagcatcca ggaggcgagg ctgcatggtc  
 300  
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 360  
 gggttggcac tgggtgagac cagccccggg gccagcaggg gaatgagcgg tggagcaggg  
 420  
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 480  
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 540  
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 600  
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 660  
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 720  
 tgtgcgtgct gttgtgtggc gcgcccggct ggctcccggt cgtcacggcc ggcgcgggcg  
 780  
 acaacgtgac ctggcggggg cagcggcgag cctcttcggc accgcacggc agcgccgcca  
 840  
 gcagcagcgc cagcaggagc agcagcagcg gcggctgcag cagc  
 885

&lt;210&gt; 4528

&lt;211&gt; 206

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4528

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Phe | Phe | Phe | Phe | Phe | Phe | Phe | Phe | Phe | Phe | Phe | Phe | Phe | Phe | Phe |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Cys | Arg | Asp | Met | Ala | Ala | Phe | Ile | Val | Pro | Ser | Pro | Ala | Arg | Arg | Cys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Gln | Lys | Gly | Ser | Leu | Gly | His | Leu | Pro | Thr | Gln | Pro | Trp | Leu | Trp |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |
| Ala | Ala | Met | Ser | Pro | Arg | Gly | Gln | Glu | Arg | Gly | Thr | Ser | His | Ser | Gln |
|     |     |     | 50  |     |     |     | 55  |     |     |     |     |     | 60  |     |     |
| Ala | Arg | Glu | Pro | Gln | Arg | Pro | Gly | Arg | Trp | Leu | Leu | Gly | Ser | Leu | Gln |
|     |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ser | Ser | Pro | Gly | Thr | Leu | Gly | Gln | Ala | Gly | Thr | Ala | Ser | Arg | Arg | Arg |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gly | Cys | Met | Val | Gln | Arg | Trp | Val | Gln | Val | Ala | Thr | Gly | Arg | Arg | Ala |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Val | Gln | Val | Pro | Lys | Gly | Ala | Leu | Gly | Leu | Ala | Leu | Gly | Glu | Thr | Ser |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |
| Pro | Gly | Ala | Ser | Arg | Gly | Met | Ser | Gly | Gly | Ala | Gly | Gly | Cys | Trp | Ala |
|     |     |     | 130 |     |     | 135 |     |     |     |     |     | 140 |     |     |     |
| Leu | Gly | Trp | Ala | Pro | Ser | Pro | Val | Leu | Pro | Ser | Trp | Leu | Leu | Glu | Gly |

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145          150          155          160
Pro Pro Pro Trp Leu Ser Ile Ile Ser Asp Ser Gly Thr Gln Thr Pro
          165          170          175
Ser Pro Arg Arg Cys Pro Ala Arg Pro Ser Pro Trp Gly Pro Gln Cys
          180          185          190
Trp Arg Gly Gly Arg Ile Ala Ser Ala Glu Ala Ser Ser Thr
          195          200          205

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<210> 4529  
 <211> 546  
 <212> DNA  
 <213> Homo sapiens

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120
aagatggagg agaaaccctc agggcccacatc ccggacatgc tggccactgc agagcccagc
180
tccagtgaga ccgacaagga ggtgttgtcc ccggtgtgac cagctgcagc cccctcctcc
240
tccatgtcgg aggagccagg ccctgagcag gcagccacac cgccagtggg gaacgtggag
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360
gaccagccc tggcctgacc agcatagtct ccgggaccag cgaggacctg cggcctccca
420
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540
agtctc
546

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<210> 4530  
 <211> 84  
 <212> PRT  
 <213> Homo sapiens

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<400> 4530
Met Glu Glu Lys Pro Ser Gly Pro Ile Pro Asp Met Leu Ala Thr Ala
1      5      10      15
Glu Pro Ser Ser Ser Glu Thr Asp Lys Glu Val Leu Ser Pro Ala Val
20     25     30
Pro Ala Ala Ala Pro Ser Ser Ser Met Ser Glu Glu Pro Gly Pro Glu
35     40     45
Gln Ala Ala Thr Pro Pro Val Gly Asn Val Glu Gly Leu Glu Gly Cys
50     55     60
Ser Arg Ala Pro Pro Gln Pro Gln Thr Ala Ala Ser Leu Ala Pro Asp
65     70     75     80
Pro Ala Leu Ala

```

&lt;210&gt; 4531

&lt;211&gt; 1414

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4531

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60  
gccggtccct tgcagggcgg tggggcccgg gccctggacc tactccgggg cctgccgcgt  
120  
gtgagcctgg ccaacttaaa gccgaatccc ggctccaaga aaccggagag aagaccaaga  
180  
ggtcggagaa gaggtagaaa atgtggcaga ggccataaag gagaaaggca aagaggaacc  
240  
cggccccgct tgggctttga gggaggccag actccatttt acatccgaat cccaaaatac  
300  
gggtttaacg aaggacatag ttccagacgc cagtataagc ctttgagtct caatagactg  
360  
cagtatctta ttgatttggg tcgtgttgat cctagtcaac ctattgactt aaccagctt  
420  
gtcaatggga gaggtgtgac catccagcca cttaaaaggg attatggtgt ccagctgggt  
480  
gaggaggggtg ctgacacctt tacggcaaaa gttaatatg aagtacagtt ggcttcagaa  
540  
ctagctattg ctgccattga aaaaaatggg ggtgttggtta ctacagcctt ctatgatcca  
600  
agaagtctgg acattgtatg caaacctggt ccattctttc ttcgtggaca acccattcca  
660  
aaaagaatgc ttccaccaga agaactggta ccatattaca ctgatgcaaa gaaccgtggg  
720  
tacctggcgg atcctgccaa atttcttgaa gcacgacttg aactcgccag gaagtatggt  
780  
tatatcttac ctgatatcac taaagatgaa ctcttcaaaa tgctctgtac taggaaggat  
840  
ccaaggcaga ttttctttgg tcttgctcca ggatgggtgg tgaatatggc cgataagaaa  
900  
atcctaaaac ctacagatga aaatctcctt aagtattata cctcatgaat tcccgctcaa  
960  
ggaagcagag ttgttaaaga gtactggaat aggggctgaa ggatctatat tcccttattg  
1020  
cattttcctt atgtataatt ttccagatgg tgatgttact tttcagtgt ctcatatgtc  
1080  
tcattttcat ctaaaattaa atggcaggaa acaaggactg catagagaaa ctgagtctgt  
1140  
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1200  
ttttagaata tttctagttt gttttttcag tgatcttttc atccaggcct tgttactggt  
1260  
acagatcaga atgaaatgca caagtggaat gggattgacc tgtaggcctg ctctgccgag  
1320  
atgagagcag atggaatgag ttggtgaccc ctcttaatct gtagcctcag ggaaacacgg  
1380  
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1414

<210> 4532  
 <211> 296  
 <212> PRT  
 <213> Homo sapiens

<400> 4532

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Met Ala Gly Pro Leu Gln Gly Gly Gly Ala Arg Ala Leu Asp Leu Leu
 1           5           10           15
Arg Gly Leu Pro Arg Val Ser Leu Ala Asn Leu Lys Pro Asn Pro Gly
      20           25           30
Ser Lys Lys Pro Glu Arg Arg Pro Arg Gly Arg Arg Arg Gly Arg Lys
      35           40           45
Cys Gly Arg Gly His Lys Gly Glu Arg Gln Arg Gly Thr Arg Pro Arg
      50           55           60
Leu Gly Phe Glu Gly Gly Gln Thr Pro Phe Tyr Ile Arg Ile Pro Lys
65           70           75           80
Tyr Gly Phe Asn Glu Gly His Ser Phe Arg Arg Gln Tyr Lys Pro Leu
      85           90           95
Ser Leu Asn Arg Leu Gln Tyr Leu Ile Asp Leu Gly Arg Val Asp Pro
      100          105          110
Ser Gln Pro Ile Asp Leu Thr Gln Leu Val Asn Gly Arg Gly Val Thr
      115          120          125
Ile Gln Pro Leu Lys Arg Asp Tyr Gly Val Gln Leu Val Glu Glu Gly
      130          135          140
Ala Asp Thr Phe Thr Ala Lys Val Asn Ile Glu Val Gln Leu Ala Ser
145          150          155          160
Glu Leu Ala Ile Ala Ala Ile Glu Lys Asn Gly Gly Val Val Thr Thr
      165          170          175
Ala Phe Tyr Asp Pro Arg Ser Leu Asp Ile Val Cys Lys Pro Val Pro
      180          185          190
Phe Phe Leu Arg Gly Gln Pro Ile Pro Lys Arg Met Leu Pro Pro Glu
      195          200          205
Glu Leu Val Pro Tyr Tyr Thr Asp Ala Lys Asn Arg Gly Tyr Leu Ala
      210          215          220
Asp Pro Ala Lys Phe Pro Glu Ala Arg Leu Glu Leu Ala Arg Lys Tyr
225          230          235          240
Gly Tyr Ile Leu Pro Asp Ile Thr Lys Asp Glu Leu Phe Lys Met Leu
      245          250          255
Cys Thr Arg Lys Asp Pro Arg Gln Ile Phe Phe Gly Leu Ala Pro Gly
      260          265          270
Trp Val Val Asn Met Ala Asp Lys Lys Ile Leu Lys Pro Thr Asp Glu
      275          280          285
Asn Leu Leu Lys Tyr Tyr Thr Ser
      290          295

```

<210> 4533  
 <211> 968  
 <212> DNA  
 <213> Homo sapiens

<400> 4533

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acgcgtgccc agcacatgtg tgcacacgca gatgcaggag agaacacaca ccaccgtctc
60

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 120  
 gcgcggcggc cccgcgcagc catggactgg ctcatgggga agtccaaagc caagcccaat  
 180  
 ggcaagaagc ccgctgcgga ggagaggaag gcctacctgg agcctgagca caccaaggcc  
 240  
 aggatcaccg acttccagtt caaggagctg gtggtgctgc cccgggagat cgacctcaac  
 300  
 gagtggctgg ccagcaacac aacaacattt ttccaccaca tcaacctgca gtatagcaca  
 360  
 atctcggagt tctgcacagg agagacgtgt cagacgatgg ccgtgtgcaa cacacagtac  
 420  
 tactggtatg acgagcgggg gaagaaggtc aagtgcacgg cccacagta cgttgacttc  
 480  
 gtcatagagct ccgtgcagaa gctggtgacg gatgaggacg tgttccccac aaaatacggc  
 540  
 agagaattcc ccagctcctt tgagtccttg gtgaggaaga tctgcagaca cctgttccac  
 600  
 gtgctggcac acatctactg ggcccacttc aaggagacgc tggccctgga gctgcacgga  
 660  
 cacttgaaca cgctctacgt ccacttcata ctctttgctc gggagttcaa cctgctggac  
 720  
 cccaaagaga ccgccatcat ggacgacctc accgaggtgc tatgcagcgg ggccggcggg  
 780  
 gtccacagtg ggggcagtgg ggatggggcc ggcagcgggg gcccgggagc acagaaccac  
 840  
 gtgaaggaga gatgagcccc ccgggcccga caggggcaca cgtgtgcaaa gagacggtgg  
 900  
 tgtgtgttct ctctgcata tgcgtgtgca cacatgtgct gggccctctc agacctcacc  
 960  
 acacgcgt  
 968

&lt;210&gt; 4534

&lt;211&gt; 284

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4534

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Arg | Ala | Gln | His | Met | Cys | Ala | His | Ala | Asp | Ala | Gly | Glu | Asn | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| His | His | Arg | Leu | Phe | Ala | His | Val | Cys | Pro | Cys | Pro | Asp | Ala | Gly | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Ala | Asp | Arg | Val | Gly | Gln | Arg | Ala | Arg | Arg | Pro | Arg | Ala | Ala | Met |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Asp | Trp | Leu | Met | Gly | Lys | Ser | Lys | Ala | Lys | Pro | Asn | Gly | Lys | Lys | Pro |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Ala | Ala | Glu | Glu | Arg | Lys | Ala | Tyr | Leu | Glu | Pro | Glu | His | Thr | Lys | Ala |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Arg | Ile | Thr | Asp | Phe | Gln | Phe | Lys | Glu | Leu | Val | Val | Leu | Pro | Arg | Glu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Ile | Asp | Leu | Asn | Glu | Trp | Leu | Ala | Ser | Asn | Thr | Thr | Thr | Phe | Phe | His |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| His | Ile | Asn | Leu | Gln | Tyr | Ser | Thr | Ile | Ser | Glu | Phe | Cys | Thr | Gly | Glu |

```

      115              120              125
Thr Cys Gln Thr Met Ala Val Cys Asn Thr Gln Tyr Tyr Trp Tyr Asp
  130              135              140
Glu Arg Gly Lys Lys Val Lys Cys Thr Ala Pro Gln Tyr Val Asp Phe
 145              150              155              160
Val Met Ser Ser Val Gln Lys Leu Val Thr Asp Glu Asp Val Phe Pro
      165              170              175
Thr Lys Tyr Gly Arg Glu Phe Pro Ser Ser Phe Glu Ser Leu Val Arg
      180              185              190
Lys Ile Cys Arg His Leu Phe His Val Leu Ala His Ile Tyr Trp Ala
      195              200              205
His Phe Lys Glu Thr Leu Ala Leu Glu Leu His Gly His Leu Asn Thr
      210              215              220
Leu Tyr Val His Phe Ile Leu Phe Ala Arg Glu Phe Asn Leu Leu Asp
 225              230              235              240
Pro Lys Glu Thr Ala Ile Met Asp Asp Leu Thr Glu Val Leu Cys Ser
      245              250              255
Gly Ala Gly Gly Val His Ser Gly Gly Ser Gly Asp Gly Ala Gly Ser
      260              265              270
Gly Gly Pro Gly Ala Gln Asn His Val Lys Glu Arg
      275              280

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<210> 4535  
 <211> 473  
 <212> DNA  
 <213> Homo sapiens

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<400> 4535
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120
ctcagcctcc cgagtagctg ggattacagg cgtccgccac cacgcccggc taatttttgt
180
attttttagta gaaacggggt ttcaccatct cggccaggct ggtcttgaac tctgacctc
240
atgatccatc cgccttggcc tcccaaagtg ctgggattac aggcattgagc taccgcgccc
300
ggccttggct gcagattaac gggaatacct cccttgggct tcttaggtga cactgtgata
360
ttcggtatga cctcccttgc tctattcctt ggaagaagta caggcactgg tcaagagtgc
420
ccgggaccca cattgcctgg ttttgaatcc cagcacctcc acatgttacg cgt
473

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<210> 4536  
 <211> 75  
 <212> PRT  
 <213> Homo sapiens

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<400> 4536
Arg Leu Phe Phe Phe Phe Phe Glu Met Glu Ser Arg Ser Val Thr
 1              5              10              15
Gln Ala Gly Val Gln Trp His Asp His Ser Ser Leu Gln Pro Leu Pro

```



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 20  |     | 25  |     | 30  |     |     |     |     |     |     |     |     |     |     |
| Pro | Arg | Phe | Lys | Gln | Phe | Ser | Xaa | Leu | Ser | Leu | Pro | Ser | Ser | Trp | Asp |
|     | 35  |     | 40  |     | 45  |     |     |     |     |     |     |     |     |     |     |
| Tyr | Arg | Arg | Pro | Pro | Pro | Arg | Pro | Ala | Asn | Phe | Cys | Ile | Phe | Ser | Arg |
|     | 50  |     | 55  |     | 60  |     |     |     |     |     |     |     |     |     |     |
| Asn | Gly | Val | Ser | Pro | Ser | Arg | Pro | Gly | Trp | Ser |     |     |     |     |     |
| 65  |     |     | 70  |     |     |     | 75  |     |     |     |     |     |     |     |     |

&lt;210&gt; 4537

&lt;211&gt; 2811

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4537

```

naagcttggc acgagggaaa tgaagcctgt gatttggact ccacagtgtc tgctcttgcc
60
ctggcttttt acctagcaaa gacaactgag gctgaggaag tctttgtgcc agttttaaat
120
ataaaacgtt ctgaactacc tctgcgaggt gacattgtct tctttcttca gaaggttcat
180
attccagaga gtatcttgat ttttcgggat gagattgacc tccatgcatt ataccaggct
240
ggccaactca cctcctcct tgctgacct catatcttat ccaaaagtga cacagcccta
300
gaggagngca gtagcagagg tgctagacca tcgacccatc gagccgaaac actgcctcc
360
ctgnnccatg tttcagttga gctggtgggg tcctgtgcta ccctggtgac cgagagaatc
420
ctgcaggggg caccagagat cttggacagg caaactgcag cccttctgca tggaaccatc
480
atcctggact gtgtcaacat ggaccttaaa attggaaagg caaccccaaa ggacagcaaa
540
tatgtggaga aactagaggc ccttttccca gacctacca agagaaatga tatatttgat
600
tccctacaaa aggcaaagtt tgatgtatca ggactgacca ctgagcagat gctgagaaaa
660
gaccagaaga ctatctatag acaaggcgct aaggtggcca ttagtgcaat atatatggat
720
ttggaggcct ttctgcagag gtctaacct cttgcagatc tccatgcttt ctgccaggct
780
cacagctatg atgtcctggg tgccatgact atctttttca aactcacia tgagccagt
840
cggcagttgg ctattttctg tccccatgtg gcaactccaa caacgatctg tgaagtctg
900
gaacgctccc actctccacc cctgaagctg acccctgcct caagtacca ccctaacctc
960
catgcctatc ttcaaggcaa caccagggtc tctcgaaaga aacttctgcc cctgctccag
1020
gaagccctgt cagcatattt tgactccatg aagatccctt caggacagcc tgagacagca
1080
gatgtgtcca gggagcaagt ggacaaggaa ttggacaggg caagtaactc cctgatttct
1140
ggactgagtc aagatgagga ggaccctccg ctgccccga cgcccatgaa cagcttggtg
1200

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gatgagtgcc ctctagatca ggggctgcct aaactctctg ctgaggccgt cttcgagaag  
1260  
tgcagtcaga tctcactgtc acagtctacc acagcctccc tgtccaagaa gtgactgttg  
1320  
agaggcgagg aggtagtggg tgaggctacc tgactcactt caaatgcatg ttttgagatg  
1380  
tttggagatt cagcaattct gtcttcattg ctccaggatc tgggtatactg ttctcataaa  
1440  
actgagagga gaaaaaaagt gaaagaaagc agctgcttta agaatggttt tccacctttt  
1500  
ccccctaatac tctaccaatac agacacattt tattatttaa atctgcacct ctctctattt  
1560  
tatttgccag gggcacgatg tgacatatct gcagtcccag cacagtggga caaaaagaat  
1620  
ttagaccca aaagtgtcct cggcattgat cttgaacaga accagtatct gtcattggaac  
1680  
tgaacattca tcgatggtct ccatgtattc atttattcac ttgttcattc aagtatttat  
1740  
tgaatacctg cctcaagcta gagagaaaag agagtgcgct ttggaaattt attccagttt  
1800  
tcagcctaca gcagattatc agctcgggtga cttttctttc tgccaccatt taggtgatgg  
1860  
tgtttgattc agagatggct gaatttctat tcttagctta ttgtgactgt ttcagatcta  
1920  
gtttgggaac agattagagg ccattgtctt ctgtcctgat caggtggcct ggctgtttct  
1980  
ttggatccct ctgtcccaga gccaccaga accctgactc ttgagaatca agaaaacacc  
2040  
cagaaaggcc ttaatgacct cataggcact cttccaaaaa gacaacagaa ctggaatgag  
2100  
aggcctgggt ctgtctcctg ccttagcagg cctatcaatt tcttgtcaat ctcttttttt  
2160  
ccttgctcac attaaaagga agcatggagt tctaattgctc ccataaacta tgtatttttg  
2220  
caagacactt cactactcca ggtctcactt tccccatctg taaaacaggg tttggactag  
2280  
gtgttccctg gtattctgtg atctgcctct tgctgccatt ctttctctcc tctgttctc  
2340  
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2400  
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2460  
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2520  
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2580  
caacagtttc actgaacagt ggggtatgtg atggtttttg catgacatct tcagtatgag  
2640  
ggggacagtt tgacttcact ttgaggggtg gatgtctgta gctatgtgga aggtaaaaat  
2700  
agtgggtgta tcatgaacca aaggaattta tgttttgtaa cttgggtact ttattttgca  
2760  
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2811

<210> 4538  
 <211> 437  
 <212> PRT  
 <213> Homo sapiens

<400> 4538

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Trp | His | Glu | Gly | Asn | Glu | Ala | Cys | Asp | Leu | Asp | Ser | Thr | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Ala | Leu | Ala | Leu | Ala | Phe | Tyr | Leu | Ala | Lys | Thr | Thr | Glu | Ala | Glu |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Val | Phe | Val | Pro | Val | Leu | Asn | Ile | Lys | Arg | Ser | Glu | Leu | Pro | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Arg | Gly | Asp | Ile | Val | Phe | Phe | Leu | Gln | Lys | Val | His | Ile | Pro | Glu | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ile | Leu | Ile | Phe | Arg | Asp | Glu | Ile | Asp | Leu | His | Ala | Leu | Tyr | Gln | Ala |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     |     | 80  |
| Gly | Gln | Leu | Thr | Leu | Ile | Leu | Val | Asp | His | His | Ile | Leu | Ser | Lys | Ser |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Asp | Thr | Ala | Leu | Glu | Glu | Xaa | Ser | Ser | Arg | Gly | Ala | Arg | Pro | Ser | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| His | Arg | Ala | Glu | Thr | Leu | Pro | Ser | Leu | Xaa | His | Val | Ser | Val | Glu | Leu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Val | Gly | Ser | Cys | Ala | Thr | Leu | Val | Thr | Glu | Arg | Ile | Leu | Gln | Gly | Ala |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Pro | Glu | Ile | Leu | Asp | Arg | Gln | Thr | Ala | Ala | Leu | Leu | His | Gly | Thr | Ile |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ile | Leu | Asp | Cys | Val | Asn | Met | Asp | Leu | Lys | Ile | Gly | Lys | Ala | Thr | Pro |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Lys | Asp | Ser | Lys | Tyr | Val | Glu | Lys | Leu | Glu | Ala | Leu | Phe | Pro | Asp | Leu |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Pro | Lys | Arg | Asn | Asp | Ile | Phe | Asp | Ser | Leu | Gln | Lys | Ala | Lys | Phe | Asp |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Val | Ser | Gly | Leu | Thr | Thr | Glu | Gln | Met | Leu | Arg | Lys | Asp | Gln | Lys | Thr |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ile | Tyr | Arg | Gln | Gly | Val | Lys | Val | Ala | Ile | Ser | Ala | Ile | Tyr | Met | Asp |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     |     | 240 |
| Leu | Glu | Ala | Phe | Leu | Gln | Arg | Ser | Asn | Leu | Leu | Ala | Asp | Leu | His | Ala |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |     |
| Phe | Cys | Gln | Ala | His | Ser | Tyr | Asp | Val | Leu | Val | Ala | Met | Thr | Ile | Phe |
|     |     |     | 260 |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Phe | Asn | Thr | His | Asn | Glu | Pro | Val | Arg | Gln | Leu | Ala | Ile | Phe | Cys | Pro |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| His | Val | Ala | Leu | Gln | Thr | Thr | Ile | Cys | Glu | Val | Leu | Glu | Arg | Ser | His |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Ser | Pro | Pro | Leu | Lys | Leu | Thr | Pro | Ala | Ser | Ser | Thr | His | Pro | Asn | Leu |
| 305 |     |     |     | 310 |     |     |     |     |     | 315 |     |     |     |     | 320 |
| His | Ala | Tyr | Leu | Gln | Gly | Asn | Thr | Gln | Val | Ser | Arg | Lys | Lys | Leu | Leu |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |
| Pro | Leu | Leu | Gln | Glu | Ala | Leu | Ser | Ala | Tyr | Phe | Asp | Ser | Met | Lys | Ile |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Pro | Ser | Gly | Gln | Pro | Glu | Thr | Ala | Asp | Val | Ser | Arg | Glu | Gln | Val | Asp |
|     |     | 355 |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |
| Lys | Glu | Leu | Asp | Arg | Ala | Ser | Asn | Ser | Leu | Ile | Ser | Gly | Leu | Ser | Gln |

```

      370              375              380
Asp Glu Glu Asp Pro Pro Leu Pro Pro Thr Pro Met Asn Ser Leu Val
385              390              395              400
Asp Glu Cys Pro Leu Asp Gln Gly Leu Pro Lys Leu Ser Ala Glu Ala
              405              410              415
Val Phe Glu Lys Cys Ser Gln Ile Ser Leu Ser Gln Ser Thr Thr Ala
              420              425              430
Ser Leu Ser Lys Lys
              435

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<210> 4539  
 <211> 331  
 <212> DNA  
 <213> Homo sapiens

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<400> 4539
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120
tcacctggaa actccagcaa gagcagagggc aggtggagga gctgaggatg cagcttcaga
180
agcagaaaag gaataactgt tcagagaaga agccgctgcc tttcctggct gcctccatca
240
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<210> 4540  
 <211> 99  
 <212> PRT  
 <213> Homo sapiens

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<400> 4540
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Thr Arg Ser Leu Gly Glu Asn Gln Arg Val Ile Asn Glu Leu Thr Trp
      20      25      30
Lys Leu Gln Gln Glu Gln Arg Gln Val Glu Glu Leu Arg Met Gln Leu
      35      40      45
Gln Lys Gln Lys Arg Asn Asn Cys Ser Glu Lys Lys Pro Leu Pro Phe
      50      55      60
Leu Ala Ala Ser Ile Lys Gln Glu Glu Ala Val Ser Ser Cys Pro Phe
65      70      75      80
Ala Ser Gln Val Pro Val Lys Arg Gln Ser Ser Ser Ser Lys Cys His
      85      90      95
Pro Pro Ala

```

<210> 4541  
 <211> 452  
 <212> DNA  
 <213> Homo sapiens

&lt;400&gt; 4541

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 cacaggcaga tccagggatg taactgcttc agcaagaact gttgcgaatc ccttcgctgt  
 120  
 tccagtctga gaaccataaa aaatcttcac tccagacaca aagatgtctt tctcttgaag  
 180  
 ggagacataa ccatttgtca tcaaatacctg agctgctttt ggaacagatt tttcctgtaa  
 240  
 gttcttgccc tgcgtcttga tgacaatctg gacacaaatc caaaggctaa tgctaacagc  
 300  
 aaagcccaaa taaatgtaaa acctgtttat ccacaatgat attaaagggtg agaagaggtc  
 360  
 ccatgtatcc gcagagggat ccatectcct cagagccgac aggagactag gatctcggac  
 420  
 ctggagagcc cgatgattcg cactgggtact gc  
 452

&lt;210&gt; 4542

&lt;211&gt; 128

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4542

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Pro | Ser | Ala | Asp | Thr | Trp | Asp | Leu | Phe | Ser | Pro | Leu | Ile | Ser |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Leu | Trp | Ile | Asn | Arg | Phe | Tyr | Ile | Tyr | Leu | Gly | Phe | Ala | Val | Ser | Ile |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Leu | Trp | Ile | Cys | Val | Gln | Ile | Val | Ile | Lys | Thr | Gln | Gly | Lys | Asn |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Gln | Glu | Lys | Ser | Val | Pro | Lys | Ala | Ala | Gln | Asp | Leu | Met | Thr | Asn |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Gly | Tyr | Val | Ser | Leu | Gln | Glu | Lys | Asp | Ile | Phe | Val | Ser | Gly | Val | Lys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ile | Phe | Tyr | Gly | Ser | Gln | Thr | Gly | Thr | Ala | Lys | Gly | Phe | Ala | Thr | Val |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Leu | Ala | Glu | Ala | Val | Thr | Ser | Leu | Asp | Leu | Pro | Val | Ala | Ile | Ile | Asn |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Lys | Glu | Tyr | Asp | Pro | Asp | Asp | His | Leu | Ile | Glu | Glu | Val | Thr | Ser |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |

&lt;210&gt; 4543

&lt;211&gt; 815

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4543

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 120  
 gaggccccgc gcaccaatgc tttgcacttt gcctcgcccg acaccctgcg ggccagagct  
 180

cctctgccgc ccaccgggct aacccttccg ggcctcacca ctcccagtg gctctgctta  
 240  
 tccggccact gactccggct cctcggaagc agggccaccc tcctgaaatg gcttggaacg  
 300  
 gggttttcca ctggtgccct cccagacga ttgcttgtaa tgggccagtg cctcgccagg  
 360  
 gacacagcgg cagccccctg tagcttggtg ctgttcagaa acaagtccag cccaggtagg  
 420  
 gcagagggct ctgactgggg acccaagaag ggctggctgt gccgccaccg ctgccccgtc  
 480  
 accatcactg tgctgaagag ctcgaggctg ggcccacccg cgccggcccc acgttcctcc  
 540  
 cggggctcag gtcagggcca gggagtgacc agaagggtgct gaccctgtgg cctgactggc  
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 660  
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 720  
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 780  
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 815

<210> 4544  
 <211> 150  
 <212> PRT  
 <213> Homo sapiens

<400> 4544  
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 Gln Ser Glu Pro Ser Ala Leu Pro Gly Leu Asp Leu Phe Leu Asn Ser  
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 His Lys Leu Gln Gly Ala Ala Ala Val Ser Leu Ala Arg His Trp Pro  
 35 40 45  
 Ile Thr Ser Asn Arg Leu Gly Arg Ala Pro Val Glu Ser Pro Val Pro  
 50 55 60  
 Ser His Phe Arg Arg Val Ala Leu Leu Pro Arg Ser Arg Ser Gln Trp  
 65 70 75 80  
 Pro Asp Lys Gln Ser His Ser Gly Val Val Arg Pro Gly Arg Val Ser  
 85 90 95  
 Pro Val Gly Gly Arg Gly Ala Leu Ala Arg Arg Val Ser Gly Glu Ala  
 100 105 110  
 Lys Cys Lys Ala Leu Val Arg Gly Ala Ser Gly Ser His Gly Gly Ala  
 115 120 125  
 Ala Gly Gln Gly Pro Ala Val Thr Arg Ser Pro Ser Ser Leu Cys Leu  
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 Ala Leu Val Ser Thr Gly  
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<210> 4545  
 <211> 3568  
 <212> DNA  
 <213> Homo sapiens

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120  
gacagaaatg cagaggagaa aaagcgttta tctcttcagc gagaaaagat tatcgcaagg  
180  
gtgagtattg ataacaggac ccgggcatta gttcaggcat taagaagaac aactgaccca  
240  
aagctctgca ttactagggt tgaagaactg acttttcatc ttctagaatt tcctgaagga  
300  
aaaggagtgg ctgtcaagga aagaattatt ccatatztat tacgactgag acaaattaag  
360  
gatgaaactc ttcaggctgc agttagagaa attttggccc taattggcta tgtggatcca  
420  
gtgaaaagga gaggaatccg aattctctca attgatgggtg gaggaacaag gggcgtgggt  
480  
gctctccaga ccctacgaaa attagttgaa cttactcaga agccagttca tcagctcttt  
540  
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600  
atgcccttgg atgaatgtga ggaactttat cgaaaattag gatcagatgt attttcacaa  
660  
aatgtcattg ttggaacagt aaaaatgagt tggagccatg cattttatga cagtcaaaca  
720  
tgggaaaaca ttcttaagga taggatggga tctgcactga tgattgaaac agcaagaaac  
780  
cccacatgtc ctaaggtagc tgctgtaagt accatagtaa atagagggat aacacccaaa  
840  
gcttttgtgt tcagaaacta tggtcatttt cctggaatca actctcatta tttgggaggc  
900  
tgtcagtata aaatgtggca ggccattaga gcctcatctg ctgctccagg ctactttgca  
960  
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1320  
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1380  
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1440  
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agaagatcaa ccacattcaa taaggaattg tgggggttcga catgagttaa ctttgaaata  
1560

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1620  
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1860  
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1920  
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1980  
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2100  
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2220  
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2340  
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2700  
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3060  
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3120  
aagaaattat attcaggcat attaagcatt gagtgtcatt attattgatg tataatggat  
3180



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 3300  
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 3360  
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 3420  
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 3480  
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 3568

<210> 4546

<211> 380

<212> PRT

<213> Homo sapiens

<400> 4546

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| Glu | Arg | Ile | Ile | Pro | Tyr | Leu | Leu | Arg | Leu | Arg | Gln | Ile | Lys | Asp | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Leu | Gln | Ala | Ala | Val | Arg | Glu | Ile | Leu | Ala | Leu | Ile | Gly | Tyr | Val |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asp | Pro | Val | Lys | Gly | Arg | Gly | Ile | Arg | Ile | Leu | Ser | Ile | Asp | Gly | Gly |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gly | Thr | Arg | Gly | Val | Val | Ala | Leu | Gln | Thr | Leu | Arg | Lys | Leu | Val | Glu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Leu | Thr | Gln | Lys | Pro | Val | His | Gln | Leu | Phe | Asp | Tyr | Ile | Cys | Gly | Val |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ser | Thr | Gly | Ala | Ile | Leu | Ala | Phe | Met | Leu | Gly | Leu | Phe | His | Met | Pro |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Leu | Asp | Glu | Cys | Glu | Glu | Leu | Tyr | Arg | Lys | Leu | Gly | Ser | Asp | Val | Phe |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Gln | Asn | Val | Ile | Val | Gly | Thr | Val | Lys | Met | Ser | Trp | Ser | His | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |
| Phe | Tyr | Asp | Ser | Gln | Thr | Trp | Glu | Asn | Ile | Leu | Lys | Asp | Arg | Met | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Ala | Leu | Met | Ile | Glu | Thr | Ala | Arg | Asn | Pro | Thr | Cys | Pro | Lys | Val |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ala | Ala | Val | Ser | Thr | Ile | Val | Asn | Arg | Gly | Ile | Thr | Pro | Lys | Ala | Phe |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Val | Phe | Arg | Asn | Tyr | Gly | His | Phe | Pro | Gly | Ile | Asn | Ser | His | Tyr | Leu |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Gly | Gly | Cys | Gln | Tyr | Lys | Met | Trp | Gln | Ala | Ile | Arg | Ala | Ser | Ser | Ala |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ala | Pro | Gly | Tyr | Phe | Ala | Glu | Tyr | Ala | Leu | Gly | Asn | Asp | Leu | His | Gln |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asp | Gly | Gly | Leu | Leu | Leu | Asn | Asn | Pro | Ser | Ala | Leu | Ala | Met | His | Glu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Cys | Lys | Cys | Leu | Trp | Pro | Asp | Val | Pro | Leu | Glu | Cys | Ile | Val | Ser | Leu |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Gly | Thr | Gly | Arg | Tyr | Glu | Ser | Asp | Val | Arg | Asn | Thr | Val | Thr | Tyr | Thr |

|             |             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|-------------|
| <400>       | 4547        |             |             |             |             |
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| 60          |             |             |             |             |             |
| tggtttttct  | tcctccccct  | cagcaagctt  | gcttttggga  | ggagtttccc  | gggtagaatt  |
| 120         |             |             |             |             |             |
| cacagttcga  | cgaatcggca  | tggtgctatc  | ttctaccttc  | tctgagctcg  | gcggctggga  |
| 180         |             |             |             |             |             |
| ctggaggaca  | gcggtggcgg  | aggcgactag  | cggcggcggg  | agcggcgccg  | agaggccgtg  |
| 240         |             |             |             |             |             |
| cgggacgcgg  | gcgccaggac  | cggccgaacg  | cagaggttga  | ttcttcacca  | caactgaaacc |
| 300         |             |             |             |             |             |
| attaggaaaa  | atccttgtgg  | ttaacagcag  | aggcttcaga  | gtgtaacctg  | tactcggggcc |
| 360         |             |             |             |             |             |
| tagaaattat  | ttaaaatggc  | gactgatacg  | tctcaagggtg | aactcgtcca  | tcctaaggca  |
| 420         |             |             |             |             |             |
| ctcccactta  | tagtaggagc  | tcagctgatc  | cacgcggaca  | agttagggtga | gaaggtagaa  |
| 480         |             |             |             |             |             |
| gatagcacca  | tgccgattcg  | tcgaactgtg  | aattctaccc  | gggaaactcc  | tcccaaaagc  |
| 540         |             |             |             |             |             |
| aagcttgctg  | aagggggagga | agaaaagcca  | gaaccagaca  | taagttcaga  | ggaatctgtc  |
| 600         |             |             |             |             |             |
| tccactgtag  | aagaacaaga  | gaatgaaaact | ccacctgcta  | cttcgagtga  | ggcagagcag  |
| 660         |             |             |             |             |             |
| ccaaaggggg  | aacctgagaa  | tgaagagaag  | gaagaaaata  | agtcttctga  | ggaaaccaa   |
| 720         |             |             |             |             |             |
| aaggatgaga  | aagatcagtc  | taaagaaaag  | gagaagaaag  | tgaaaaaac   | aattccttcc  |
| 780         |             |             |             |             |             |
| tgggctaccc  | tttctgccag  | ccagctagcc  | agggcccgga  | aacaaacacc  | gatggcttct  |
| 840         |             |             |             |             |             |
| tccccacgtc  | ccaagatgga  | tgcaatctta  | actgaggcca  | ttaaggcatg  | cttcagaag   |
| 900         |             |             |             |             |             |
| agtggtgcat  | cagtggttgc  | tattcgaaaa  | tacatcatcc  | ataagtatcc  | ttctctggag  |
| 960         |             |             |             |             |             |

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 1080  
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 1140  
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 1200  
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 1740  
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 1920  
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 1980  
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 2160  
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 2211

&lt;210&gt; 4548

&lt;211&gt; 515

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4548

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Thr | Val | Asn | Ser | Thr | Arg | Glu | Thr | Pro | Pro | Lys | Ser | Lys | Leu | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Gly | Glu | Glu | Glu | Lys | Pro | Glu | Pro | Asp | Ile | Ser | Ser | Glu | Glu | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Val | Ser | Thr | Val | Glu | Glu | Gln | Glu | Asn | Glu | Thr | Pro | Pro | Ala | Thr | Ser |

35 40 45  
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 Leu Ser Ala Ser Gln Leu Ala Arg Ala Gln Lys Gln Thr Pro Met Ala  
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 Ser Ser Pro Arg Pro Lys Met Asp Ala Ile Leu Thr Glu Ala Ile Lys  
 115 120 125  
 Ala Cys Phe Gln Lys Ser Gly Ala Ser Val Val Ala Ile Arg Lys Tyr  
 130 135 140  
 Ile Ile His Lys Tyr Pro Ser Leu Glu Leu Glu Arg Arg Gly Tyr Leu  
 145 150 155 160  
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 165 170 175  
 Val Leu His Asn Val Lys Gly Lys Gly Ala Ser Gly Ser Phe Val Val  
 180 185 190  
 Val Gln Lys Ser Arg Lys Thr Pro Gln Lys Ser Arg Asn Arg Lys Asn  
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 Arg Ser Ser Ala Val Asp Pro Glu Pro Gln Val Lys Leu Glu Asp Val  
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 Ser Leu Ile Arg Lys Tyr Val Ser Gln Tyr Tyr Pro Lys Leu Arg Val  
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 Arg Gly Gln Leu Glu Gln Ile Thr Gly Lys Gly Ala Ser Gly Thr Phe  
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 Gln Leu Lys Lys Ser Gly Glu Lys Pro Leu Leu Gly Gly Ser Leu Met  
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 Glu Tyr Ala Ile Leu Ser Ala Ile Ala Ala Met Asn Glu Pro Lys Thr  
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 Cys Ser Thr Thr Ala Leu Lys Lys Tyr Val Leu Glu Asn His Pro Gly  
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 Thr Asn Ser Asn Tyr Gln Met His Leu Leu Lys Lys Thr Leu Gln Lys  
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 Cys Glu Lys Asn Gly Trp Met Glu Gln Ile Ser Gly Lys Gly Phe Ser  
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 Gly Thr Phe Gln Leu Cys Phe Pro Tyr Tyr Pro Ser Pro Gly Val Leu  
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 Phe Pro Lys Lys Glu Pro Asp Asp Ser Arg Asp Glu Asp Glu Asp Glu  
 385 390 395 400  
 Asp Glu Ser Ser Glu Glu Asp Ser Glu Asp Glu Glu Pro Pro Pro Lys  
 405 410 415  
 Arg Arg Leu Gln Lys Lys Thr Pro Ala Lys Ser Pro Gly Lys Ala Ala  
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 Ser Val Lys Gln Arg Gly Ser Lys Pro Ala Pro Lys Val Ser Ala Ala  
 435 440 445  
 Gln Arg Gly Lys Ala Arg Pro Leu Pro Lys Lys Ala Pro Pro Lys Ala  
 450 455 460  
 Lys Thr Pro Ala Lys Lys Thr Arg Pro Ser Ser Thr Val Ile Lys Lys

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 465 |     | 470 |     | 475 |     | 480 |     |     |     |     |     |     |     |     |     |
| Pro | Ser | Gly | Gly | Ser | Lys | Lys | Pro | Ala | Thr | Ser | Ala | Arg | Lys | Glu |     |
|     |     |     | 485 |     |     |     | 490 |     |     |     |     |     | 495 |     |     |
| Val | Lys | Leu | Pro | Gly | Lys | Gly | Lys | Ser | Thr | Met | Lys | Lys | Ser | Phe | Arg |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Val | Lys | Lys |     |     |     |     |     |     |     |     |     |     |     |     |     |
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&lt;210&gt; 4549

&lt;211&gt; 2927

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4549

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 <213> Homo sapiens

<400> 4550  
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 Tyr Val Glu Thr Val Asp Ile Asp Gly Glu Thr Asn Leu Lys Phe Arg  
 35 40 45  
 Gln Ala Leu Met Val Thr His Lys Glu Leu Ala Thr Ile Lys Lys Met  
 50 55 60  
 Ala Ser Phe Gln Gly Thr Val Thr Cys Glu Ala Pro Asn Ser Arg Met  
 65 70 75 80  
 His His Phe Val Gly Cys Leu Glu Trp Asn Asp Lys Lys Tyr Ser Leu  
 85 90 95  
 Asp Ile Gly Asn Leu Leu Leu Arg Gly Cys Arg Ile Arg Asn Thr Asp  
 100 105 110  
 Thr Cys Tyr Gly Leu Val Ile Tyr Ala Asp Gly Tyr Met Phe Val Gly  
 115 120 125  
 Phe Asp Thr Lys Ile Met Lys Asn Cys Gly Lys Ile His Leu Lys Arg  
 130 135 140  
 Thr Lys Leu Asp Leu Leu Met Asn Lys Leu Val Val Val Ile Phe Ile  
 145 150 155 160  
 Ser Val Val Leu Val Cys Leu Val Leu Ala Phe Gly Phe Gly Phe Ser  
 165 170 175  
 Val Lys Glu Phe Lys Asp His His Tyr Tyr Leu Ser Gly Val His Gly  
 180 185 190  
 Ser Ser Val Ala Ala Glu Ser Phe Phe Val Phe Trp Ser Phe Leu Ile  
 195 200 205  
 Leu Leu Ser Val Thr Ile Pro Met Ser Met Phe Ile Leu Ser Glu Phe  
 210 215 220  
 Ile Tyr Leu Gly Asn Ser Val Phe Ile Asp Trp Asp Val Gln Met Tyr  
 225 230 235 240  
 Tyr Lys Pro Gln Asp Val Pro Ala Lys Ala Arg Ser Thr Ser Leu Asn  
 245 250 255  
 Asp His Leu Gly Gln Val Glu Tyr Ile Phe Ser Asp Lys Thr Gly Thr  
 260 265 270  
 Leu Thr Gln Asn Ile Leu Thr Phe Asn Lys Cys Cys Ile Ser Gly Arg  
 275 280 285  
 Val Tyr Gly Glu Pro Leu Pro Leu Glu Gln Val Arg Arg Arg Glu Ala  
 290 295 300  
 Ala Leu Pro Gln Cys Gly Pro Ala Ala Pro Arg Ala Asp Gln Arg Gly  
 305 310 315 320  
 Arg Gly Arg Ala Gly Val Leu Ala Pro Ala Gly His Leu Pro His Gly  
 325 330 335  
 Asp Asp Gln Leu Leu Tyr Gln Ala Ala Ser Pro Asp Glu Gly Ala Leu

[illegible]



|   |     |     |     |     |
|---|-----|-----|-----|-----|
| 770   |     | 775 |     | 780 |
| Gly Gln Asp Val Ser Ala Glu Gln Ser Leu Glu Lys Pro Glu Leu Tyr |     |     |     |     |
| 785   |     | 790 |     | 795 |
| Val Val Gly Gln Lys Asp Glu Leu Phe Asn Tyr Trp Val Phe Val Gln |     |     |     | 800 |
|   | 805 |     | 810 | 815 |
| Ala Ile Ala His Gly Val Thr Thr Ser Leu Val Asn Phe Phe Met Thr |     |     |     |     |
|   | 820 |     | 825 | 830 |
| Leu Trp Ile Ser Arg Asp Thr Ala Gly Pro Ala Ser Phe Ser Asp His |     |     |     |     |
|   | 835 |     | 840 | 845 |
| Gln Ser Phe Ala Val Val Val Ala Leu Ser Cys Leu Leu Ser Ile Thr |     |     |     |     |
|   | 850 |     | 855 | 860 |
| Met Glu Val Ile Leu Ile Ile Lys Tyr Trp Thr Ala Leu Cys Val Ala |     |     |     |     |
| 865   |     | 870 |     | 875 |
| Thr Ile Leu Leu Ser Leu Gly Phe Tyr Ala Ile Met Thr Thr Thr Thr |     |     |     | 880 |
|   | 885 |     | 890 | 895 |
| Gln Ser Phe Trp Leu Phe Arg Met Pro Thr Ser Ala                 |     |     |     |     |
|   | 900 |     | 905 |     |

&lt;210&gt; 4551

&lt;211&gt; 361

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4551

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120  
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240  
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c  
361

&lt;210&gt; 4552

&lt;211&gt; 100

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4552

|   |    |    |    |  |
|---|----|----|----|--|
| Met Glu Gly Pro Ser Val Arg Val Arg Thr Gly Gly Arg Gly Ser Arg |    |    |    |  |
| 1   | 5  | 10 | 15 |  |
| Ala Leu Gln Gly Gln Ala Gly Val Ala Leu Pro Val Ser Glu Gln Ala |    |    |    |  |
|   | 20 | 25 | 30 |  |
| Ser Ala Ala His Cys Pro Val Pro Gly Ile Ser Glu Gly Pro Arg Thr |    |    |    |  |
|   | 35 | 40 | 45 |  |
| Cys Ser Gln Gln Gly Arg Gln Gly Arg Ala Pro Arg Arg Asp Pro Thr |    |    |    |  |
|   | 50 | 55 | 60 |  |
| Gln Arg Thr Trp Glu Ser Gly Cys Gln Arg Trp Ala Ala Gly Arg Ala |    |    |    |  |

65                                      70                                      75                                      80  
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 Val Arg Cys Trp  
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 1260

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 <213> Homo sapiens

<400> 4554

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Leu | Arg | Ile | His | Val | Leu | Leu | Gly | Leu | Ala | Ile | Thr | Thr | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Gln | Ala | Val | Asp | Lys | Lys | Val | Asp | Cys | Pro | Arg | Leu | Cys | Thr | Cys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Ile | Arg | Pro | Trp | Phe | Thr | Pro | Arg | Ser | Ile | Tyr | Met | Glu | Ala | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Thr | Val | Asp | Cys | Asn | Asp | Leu | Gly | Leu | Leu | Thr | Phe | Pro | Ala | Arg | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Ala | Asn | Thr | Gln | Ile | Leu | Leu | Leu | Gln | Thr | Asn | Asn | Ile | Ala | Lys |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     |     | 80  |
| Ile | Glu | Tyr | Ser | Thr | Asp | Phe | Pro | Val | Asn | Leu | Thr | Gly | Leu | Asp | Leu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ser | Gln | Asn | Asn | Leu | Ser | Ser | Val | Thr | Asn | Ile | Asn | Val | Lys | Lys | Met |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Pro | Gln | Leu | Leu | Ser | Val | Tyr | Leu | Glu | Glu | Asn | Lys | Leu | Thr | Glu | Leu |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Pro | Glu | Lys | Cys | Leu | Ser | Glu | Leu | Ser | Asn | Leu | Gln | Glu | Leu | Tyr | Ile |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asn | His | Asn | Leu | Leu | Ser | Thr | Ile | Ser | Pro | Gly | Ala | Phe | Ile | Gly | Leu |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     |     | 160 |
| His | Asn | Leu | Leu | Arg | Leu | His | Leu | Asn | Ser | Asn | Arg | Leu | Gln | Met | Ile |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Asn | Ser | Lys | Trp | Phe | Asp | Ala | Leu | Pro | Asn | Leu | Glu | Ile | Leu | Met | Ile |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| Gly | Glu | Asn | Pro | Ile | Ile | Arg | Ile | Lys | Asp | Met | Asn | Phe | Lys | Pro | Leu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ile | Asn | Leu | Arg | Ser | Leu | Val | Ile | Ala | Gly | Ile | Asn | Leu | Thr | Glu | Ile |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Pro | Asp | Asn | Ala | Leu | Val | Gly | Leu | Glu | Asn | Leu | Glu | Ser | Ile | Ser | Phe |
| 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     |     | 240 |
| Tyr | Asp | Asn | Arg | Leu | Ile | Lys | Val | Pro | His | Val | Ala | Leu | Gln | Lys | Val |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Val | Asn | Leu | Lys | Phe | Leu | Asp | Leu | Asn | Lys | Asn | Pro | Ile | Asn | Arg | Ile |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |     |
| Arg | Arg | Gly | Asp | Phe | Ser | Asn | Met | Leu | His | Leu | Lys | Glu | Leu | Gly | Ile |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Asn | Asn | Met | Pro | Glu | Leu | Ile | Ser | Ile | Asp | Ser | Leu | Ala | Val | Asp | Asn |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Leu | Pro | Asp | Leu | Arg | Lys | Ile | Glu | Ala | Thr | Asn | Asn | Pro | Arg | Leu | Ser |
| 305 |     |     |     | 310 |     |     |     |     |     | 315 |     |     |     |     | 320 |
| Tyr | Ile | His | Pro | Asn | Ala | Phe | Phe | Arg | Leu | Pro | Lys | Leu | Glu | Ser | Leu |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |     |
| Met | Leu | Asn | Ser | Asn | Ala | Leu | Ser | Ala | Leu | Tyr | His | Gly | Thr | Ile | Glu |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |  |
| Ser | Leu | Pro | Asn | Leu | Lys | Glu | Ile | Ser | Ile | His | Ser | Asn | Pro | Ile | Arg |  |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     |     | 365 |     |     |  |  |
| Cys | Asp | Cys | Val | Ile | Arg | Trp | Met | Asn | Met | Asn | Lys | Thr | Asn | Ile | Arg |  |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     |     | 380 |     |     |     |  |  |
| Phe | Met | Glu | Pro | Asp | Ser | Leu | Phe | Cys | Val | Asp | Pro | Pro | Glu | Phe | Gln |  |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |  |
| Gly | Gln | Asn | Val | Arg | Gln | Val | His | Phe | Arg | Asp | Met | Met | Glu | Ile | Cys |  |  |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     | 415 |     |  |  |
| Leu | Pro | Leu | Ile | Ala | Pro | Glu | Ser | Phe | Pro | Ser | Asn | Leu | Asn | Val | Glu |  |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |  |
| Ala | Gly | Ser | Tyr | Val | Ser | Phe | His | Cys | Arg | Ala | Thr | Ala | Glu | Pro | Gln |  |  |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |  |  |
| Pro | Glu | Ile | Tyr | Trp | Ile | Thr | Pro | Ser | Gly | Gln | Lys | Leu | Leu | Pro | Asn |  |  |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |  |  |
| Thr | Leu | Thr | Asp | Lys | Phe | Tyr | Val | His | Ser | Glu | Gly | Thr | Leu | Asp | Ile |  |  |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |  |
| Asn | Gly | Val | Thr | Pro | Lys | Glu | Gly | Gly | Leu | Tyr | Thr | Cys | Ile | Ala | Thr |  |  |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |  |  |
| Asn | Leu | Val | Gly | Ala | Asp | Leu | Lys | Ser | Val | Met | Ile | Lys | Val | Asp | Gly |  |  |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |  |
| Ser | Phe | Pro | Gln | Asp | Asn | Asn | Gly | Ser | Leu | Asn | Ile | Lys | Ile | Arg | Asp |  |  |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     |     | 525 |     |     |  |  |
| Ile | Gln | Ala | Asn | Ser | Val | Leu | Val | Ser | Trp | Lys | Ala | Ser | Ser | Lys | Ile |  |  |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |  |  |
| Leu | Lys | Ser | Ser | Val | Lys | Trp | Thr | Ala | Phe | Val | Lys | Thr | Glu | Asn | Ser |  |  |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |  |  |
| His | Ala | Ala | Gln | Ser | Ala | Arg | Ile | Pro | Ser | Asp | Val | Lys | Val | Tyr | Asn |  |  |
|     |     |     | 565 |     |     |     |     | 570 |     |     |     |     |     | 575 |     |  |  |
| Leu | Thr | His | Leu | Asn | Pro | Ser | Thr | Glu | Tyr | Lys | Ile | Cys | Ile | Asp | Ile |  |  |
|     |     | 580 |     |     |     |     |     | 585 |     |     |     |     | 590 |     |     |  |  |
| Pro | Thr | Ile | Tyr | Gln | Lys | Asn | Arg | Lys | Lys | Cys | Val | Asn | Val | Thr | Thr |  |  |
|     | 595 |     |     |     |     | 600 |     |     |     |     |     | 605 |     |     |     |  |  |
| Lys | Gly | Leu | His | Pro | Asp | Gln | Lys | Glu | Tyr | Glu | Lys | Asn | Asn | Thr | Thr |  |  |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |  |  |
| Thr | Leu | Met | Ala | Cys | Leu | Gly | Gly | Leu | Leu | Gly | Ile | Ile | Gly | Val | Ile |  |  |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |  |  |
| Cys | Leu | Ile | Ser | Cys | Leu | Ser | Pro | Glu | Met | Asn | Cys | Asp | Gly | Gly | His |  |  |
|     |     |     | 645 |     |     |     |     | 650 |     |     |     |     |     | 655 |     |  |  |
| Ser | Tyr | Val | Arg | Asn | Tyr | Leu | Gln | Lys | Pro | Thr | Phe | Ala | Leu | Gly | Glu |  |  |
|     |     | 660 |     |     |     |     |     | 665 |     |     |     |     | 670 |     |     |  |  |
| Leu | Tyr | Pro | Pro | Leu | Ile | Asn | Leu | Trp | Glu | Ala | Gly | Lys | Glu | Lys | Ser |  |  |
|     | 675 |     |     |     |     | 680 |     |     |     |     |     | 685 |     |     |     |  |  |
| Thr | Ser | Leu | Lys | Val | Lys | Ala | Thr | Val | Ile | Gly | Leu | Pro | Thr | Asn | Met |  |  |
|     | 690 |     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     |  |  |

Ser  
705

&lt;210&gt; 4555

&lt;211&gt; 1128

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4555

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 ttgggtccct gaggccttcc tcggagcatt ggggtgccagg ggctgcccag gcttcctgag  
 120  
 tggccacact ggggtgggagg ctgccaccgc ggccctgatca tgccctctgt gccacacag  
 180  
 gtctctgagc ggccctgat gttcctgttg gacactcctg gcgtgctggc tctcggatt  
 240  
 gaaagtgtgg agacaggcct gaagctggcc ctgtgtggaa cgggtgctgga ccacctggtc  
 300  
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 480  
 aacgttattc agcctaacta tcctgcggca gcccgtagct tcctgcagac tttccgcgt  
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 aggagttaaa gctataacct gtaaccttta aaatctccag ttaaagggcc tgtttcttac  
 960  
 tggcctgtga ggtgcaccgt agtgccttgg gcctgtgtgt taaagctgct ctcaccagtg  
 1020  
 gaacctaaaga aatgagcagg ttggcagcta gggtttgtgt tggaggcttt cgggtccagt  
 1080  
 tcttgagtc ctacaacaag tgagagcttg ctgccaaaaa aaaaaaaa  
 1128

&lt;210&gt; 4556

&lt;211&gt; 67

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4556

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Ser | Val | Pro | Thr | Gln | Val | Ser | Glu | Arg | Pro | Leu | Met | Phe | Leu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Leu | Asp | Thr | Pro | Gly | Val | Leu | Ala | Pro | Arg | Ile | Glu | Ser | Val | Glu | Thr |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Leu | Lys | Leu | Ala | Leu | Cys | Gly | Thr | Val | Leu | Asp | His | Leu | Val | Gly |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Glu | Glu | Thr | Met | Ala | Asp | Tyr | Leu | Leu | Tyr | Thr | Leu | Asn | Lys | His | Gln |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Arg | Phe | Gly |     |     |     |     |     |     |     |     |     |     |     |     |     |

65

&lt;210&gt; 4557

&lt;211&gt; 446

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4557

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120catctaggac attctcatcc cctgagacc tcaagggcct tctgcctcc tccctcagac  
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300gacctccaca tcccatcagc agccaccctg ggccctgca tgcactggcc tctccctca  
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446

&lt;210&gt; 4558

&lt;211&gt; 148

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4558

Xaa Arg Val His Arg Lys Arg Cys Gln Asp Ser Leu Gly Ser Pro Arg  
1 5 10 15Arg Ala Gly Met Ala Cys Pro Ser Pro Leu Leu Thr Pro Ala Pro Ser  
20 25 30Lys Ala Val Arg Cys Ala Gln Asp His Leu Gly His Ser His Pro Pro  
35 40 45Glu Thr Ser Arg Ala Phe Leu Pro Pro Pro Ser Asp Val Arg Val Arg  
50 55 60Ser Cys Leu Tyr His Trp Ser Ala Thr Ala His Leu Pro Pro Leu Ser  
65 70 75 80Lys Lys Pro Pro Cys Thr Ile Ser His Leu Arg Pro Leu Leu Gly Leu  
85 90 95Pro Pro Pro Ser Asp Leu His Ile Pro Ser Ala Ala Thr Leu Gly Pro  
100 105 110Cys Met His Trp Pro Pro Pro Ser Asp Ala Pro Cys Thr Ile Ser Leu  
115 120 125Ala Leu Asp Ala Leu Leu Gly Leu Pro Pro Pro Ser Asp His His Ile  
130 135 140Thr Ser Thr Arg  
145

&lt;210&gt; 4559

&lt;211&gt; 919

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4559

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60
aaagtagctg ggcaggggtg ttcccctggg ggatggagtg ggggtacaga cagtagcctg
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840
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900
ttgtactccg acgtcatga
919

```

&lt;210&gt; 4560

&lt;211&gt; 126

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4560

```

Met Gln Gln Thr Asn Val Ala Leu Leu Gly Arg Glu Thr Val Gly Lys
 1             5             10             15
Lys Glu Pro Thr Gly Phe Ser Leu Asn Pro Met Tyr Val Arg Ser
      20             25             30
Pro Cys Asp Pro Asp Arg Asp Gln Arg Tyr Leu Thr Thr Tyr Asn Gln
      35             40             45
Gly Tyr Phe Glu Asn Ile Pro Lys Gly Leu Asp Gln Glu Gly Trp Thr
      50             55             60
Arg Gly Gly Ile Gln Pro Gln Met Pro Gly Gly Tyr Ala Leu Ser Gln
      65             70             75             80
Pro Val Ser Cys Met Glu Ala Thr Pro Asn Pro Met Glu Ser Leu Arg

```



|             |             |            |             |             |            |
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| gatcgcgccc  | gtccgcattc  | gccgacgtct | ccactgctga  | gcaaaagcca  | cccgaggctg |
| 120         |             |            |             |             |            |
| gcgacagtgt  | cttgccgggg  | agtagtagcc | gggctggtaa  | ctggagtttg  | agattaggag |
| 180         |             |            |             |             |            |
| actttcagac  | ccttggtgcac | aaagagcagg | atgaagttaa  | aggaagtaga  | tcgtacagcc |
| 240         |             |            |             |             |            |
| atgcaggcat  | ggagccctgc  | ccagaatcac | cccatttacc  | tagcaacagg  | aacatctgct |
| 300         |             |            |             |             |            |
| cagcaattgg  | atgcaacatt  | tagtacgaat | gcttcccttg  | agatatattga | attagacctc |
| 360         |             |            |             |             |            |
| tctgatccat  | ccttggatat  | gaaatcttgt | gccacattct  | cctcttctca  | caggtaccac |
| 420         |             |            |             |             |            |
| aagttgattt  | gggggcctta  | taaaatggat | tccaaaggag  | atgtctctgg  | agttctgatt |
| 480         |             |            |             |             |            |
| gcaggtgggtg | aaaatggaaa  | tattattctc | tatgatcctt  | ctaaaattat  | agctggagac |
| 540         |             |            |             |             |            |
| aaggaagttg  | tgattgcca   | gaatgacaag | catactggcc  | cagtgaagagc | cttggatgtg |
| 600         |             |            |             |             |            |
| aacattttcc  | agactaatct  | ggtagcttct | ggtgctaattg | aatctgaaat  | ctacatatgg |
| 660         |             |            |             |             |            |
| gatctaaata  | attttgcaac  | ccaatgaca  | ccaggagcca  | aaacacagcc  | gccagaagat |
| 720         |             |            |             |             |            |
| atcagctgca  | ttgcatggaa  | cagacaagtt | cagcatattt  | tagcatcagc  | cagtcaccgt |
| 780         |             |            |             |             |            |
| ggccggggcca | ctgtatggga  | tcttagagaa | aatgagccaa  | tcatcaaagt  | cagtgaccat |
| 840         |             |            |             |             |            |
| agtaacagaa  | tgcattgttc  | tggtttggca | tggcatcctg  | atgttgctac  | tcagatggtc |
| 900         |             |            |             |             |            |
| cttgccctccg | aggatgaccg  | gttaccagtg | atccagatgt  | gggatcttcg  | atttgcttcc |
| 960         |             |            |             |             |            |
| tctccacttc  | gtgtcctgga  | aaaccatgcc | agggggattt  | tggcaattgc  | ttggagcatg |
| 1020        |             |            |             |             |            |
| gcagatcctg  | aattgttact  | gagctgtgga | aaagatgcta  | agattctctg  | ctccaatcca |
| 1080        |             |            |             |             |            |
| aacacaggag  | aggtgttata  | tgaacttccc | accaacacac  | agtggtgctt  | cgatattcag |
| 1140        |             |            |             |             |            |
| tggtgtcccc  | gaaatcctgc  | tgtcttatca | gctgcttcgt  | ttgatggggc  | tatcagtgtt |
| 1200        |             |            |             |             |            |
| tattctatca  | tgggaggaag  | cacagatggt | ttaagacaga  | aacaagttga  | caagctttca |
| 1260        |             |            |             |             |            |

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1740  
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1980  
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2100  
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2880

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&lt;211&gt; 1182

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4562

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| Ala | Gln | Asn | His | Pro | Ile | Tyr | Leu | Ala | Thr | Gly | Thr | Ser | Ala | Gln | Gln |

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| Leu | Asp | Ala | Thr | Phe | Ser | Thr | Asn | Ala | Ser | Leu | Glu | Ile | Phe | Glu | Leu |  |  |  |  |  |
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| Asp | Leu | Ser | Asp | Pro | Ser | Leu | Asp | Met | Lys | Ser | Cys | Ala | Thr | Phe | Ser |  |  |  |  |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |  |  |  |
| Ser | Ser | His | Arg | Tyr | His | Lys | Leu | Ile | Trp | Gly | Pro | Tyr | Lys | Met | Asp |  |  |  |  |  |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |  |  |  |  |  |
| Ser | Lys | Gly | Asp | Val | Ser | Gly | Val | Leu | Ile | Ala | Gly | Gly | Glu | Asn | Gly |  |  |  |  |  |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |  |  |  |  |  |
| Asn | Ile | Ile | Leu | Tyr | Asp | Pro | Ser | Lys | Ile | Ile | Ala | Gly | Asp | Lys | Glu |  |  |  |  |  |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |  |  |  |  |  |
| Val | Val | Ile | Ala | Gln | Asn | Asp | Lys | His | Thr | Gly | Pro | Val | Arg | Ala | Leu |  |  |  |  |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |  |  |  |  |  |
| Asp | Val | Asn | Ile | Phe | Gln | Thr | Asn | Leu | Val | Ala | Ser | Gly | Ala | Asn | Glu |  |  |  |  |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |  |  |  |
| Ser | Glu | Ile | Tyr | Ile | Trp | Asp | Leu | Asn | Asn | Phe | Ala | Thr | Pro | Met | Thr |  |  |  |  |  |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |  |  |  |  |  |
| Pro | Gly | Ala | Lys | Thr | Gln | Pro | Pro | Glu | Asp | Ile | Ser | Cys | Ile | Ala | Trp |  |  |  |  |  |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |  |  |  |  |  |
| Asn | Arg | Gln | Val | Gln | His | Ile | Leu | Ala | Ser | Ala | Ser | Pro | Ser | Gly | Arg |  |  |  |  |  |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |  |  |  |  |  |
| Ala | Thr | Val | Trp | Asp | Leu | Arg | Glu | Asn | Glu | Pro | Ile | Ile | Lys | Val | Ser |  |  |  |  |  |
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| Asp | His | Ser | Asn | Arg | Met | His | Cys | Ser | Gly | Leu | Ala | Trp | His | Pro | Asp |  |  |  |  |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |  |  |  |  |
| Val | Ala | Thr | Gln | Met | Val | Leu | Ala | Ser | Glu | Asp | Asp | Arg | Leu | Pro | Val |  |  |  |  |  |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     | 240 |     |  |  |  |  |  |
| Ile | Gln | Met | Trp | Asp | Leu | Arg | Phe | Ala | Ser | Ser | Pro | Leu | Arg | Val | Leu |  |  |  |  |  |
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|     |     | 275 |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |  |  |  |  |  |
| Asn | Pro | Asn | Thr | Gly | Glu | Val | Leu | Tyr | Glu | Leu | Pro | Thr | Asn | Thr | Gln |  |  |  |  |  |
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| Trp | Cys | Phe | Asp | Ile | Gln | Trp | Cys | Pro | Arg | Asn | Pro | Ala | Val | Leu | Ser |  |  |  |  |  |
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| Ala | Ala | Ser | Phe | Asp | Gly | Arg | Ile | Ser | Val | Tyr | Ser | Ile | Met | Gly | Gly |  |  |  |  |  |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     | 335 |     |     |  |  |  |  |  |
| Ser | Thr | Asp | Gly | Leu | Arg | Gln | Lys | Gln | Val | Asp | Lys | Leu | Ser | Ser | Ser |  |  |  |  |  |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |  |  |  |  |
| Phe | Gly | Asn | Leu | Asp | Pro | Phe | Gly | Thr | Gly | Gln | Pro | Leu | Pro | Pro | Leu |  |  |  |  |  |
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| Gln | Ile | Pro | Gln | Gln | Thr | Ala | Gln | His | Ser | Ile | Val | Leu | Pro | Leu | Lys |  |  |  |  |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     |     |     |     |     |     |  |  |  |  |  |

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| Phe Glu Asp Asp Ser Arg Gly Lys Tyr Leu Glu Leu Leu Gly Tyr Arg |     |     |     | 480 |
|   | 485 |     | 490 | 495 |
| Lys Glu Asp Leu Glu Lys Xaa Gln Asp Ile Lys Glu Glu Lys Glu Glu |     |     |     |     |
|   | 500 |     | 505 | 510 |
| Ser Glu Phe Leu Pro Ser Ser Gly Gly Thr Phe Asn Ile Ser Val Ser |     |     |     |     |
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|   | 565 |     | 570 | 575 |
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|   | 610 |     | 615 | 620 |
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| Glu Gly Asp Ser Leu Leu Gln Thr Gln Ala Cys Leu Cys Tyr Ile Cys |     |     |     | 640 |
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| Ala Gly Asn Val Glu Lys Leu Val Ala Cys Trp Thr Lys Ala Gln Asp |     |     |     |     |
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| Gly Ser His Pro Leu Ser Leu Gln Asp Leu Ile Glu Lys Val Val Ile |     |     |     |     |
|   | 675 |     | 680 | 685 |
| Leu Arg Lys Ala Val Gln Leu Thr Gln Ala Met Asp Thr Ser Thr Val |     |     |     |     |
|   | 690 |     | 695 | 700 |
| Gly Val Leu Leu Ala Ala Lys Met Ser Gln Tyr Ala Asn Leu Leu Ala |     |     |     |     |
| 705   |     | 710 |     | 715 |
| Ala Gln Gly Ser Ile Ala Ala Ala Leu Ala Phe Leu Pro Asp Asn Thr |     |     |     |     |
|   | 725 |     | 730 | 735 |
| Asn Gln Pro Asn Ile Met Gln Leu Arg Asp Arg Leu Cys Arg Ala Gln |     |     |     |     |
|   | 740 |     | 745 | 750 |
| Gly Glu Pro Val Ala Gly His Glu Ser Pro Lys Ile Pro Tyr Glu Lys |     |     |     |     |
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| Gln Gln Leu Pro Lys Gly Arg Pro Gly Pro Val Ala Gly His His Gln |     |     |     |     |
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| 785   |     | 790 |     | 795 |
| Pro Pro Pro Gly Phe Ile Met His Gly Asn Val Asn Pro Asn Ala Ala |     |     |     |     |
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| Gly Gln Leu Pro Thr Ser Pro Gly His Met His Thr Gln Val Pro Pro |     |     |     |     |
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| Tyr Pro Gln Pro Gln Pro Tyr Gln Pro Ala Gln Pro Tyr Pro Phe Gly |     |     |     |     |
|   | 835 |     | 840 | 845 |
| Thr Gly Gly Ser Ala Met Tyr Arg Pro Gln Gln Pro Val Ala Pro Pro |     |     |     |     |
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| Thr Ser Asn Ala Tyr Pro Asn Thr Pro Tyr Ile Ser Ser Ala Ser Ser |     |     |     |     |
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&lt;400&gt; 4566

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gln | Val | Val | Arg | Glu | Gln | Ile | Thr | Arg | Ala | Leu | Pro | Ser | Lys | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Asn | Ser | Leu | Asp | Gln | Phe | Lys | Ser | Lys | Leu | Arg | Ser | Leu | Ser | Tyr | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Glu | Ile | Leu | Arg | Leu | Arg | Gln | Ser | Glu | Arg | Met | Ser | Gln | Asp | Asp | Phe |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Gln | Ser | Pro | Pro | Ile | Val | Glu | Leu | Arg | Glu | Lys | Ile | Gln | Pro | Glu | Ile |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Leu | Glu | Leu | Ile | Lys | Gln | Gln | Arg | Leu | Asn | Arg | Leu | Cys | Glu | Gly | Ser |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |
| Ser | Phe | Arg | Lys | Ile | Gly | Asn | Arg | Arg | Arg | Gln | Glu | Arg | Phe | Trp | Tyr |

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<210> 4567
<211> 1211
<212> DNA
<213> Homo sapiens
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<400> 4567
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120
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180
gtgacctccc caaaggatgg ctccatctcc attctgggtt ctgatgatgc cactacttgt
240
cacatttgtg tcctgaggca cacaggtaat ggggccacct gcttgacaca ttgtgacgga
300
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360
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420
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480
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540
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600
gagatttaca gagcatcctt tcaagatcgg ggtccggagg agcagcttcg tgctgcgcga
660
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720
ggaccgtact cctggacacc atttccacat gtggatttct ggttgcacca agatgacaag
780

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caaatactag agaatctttc cacttcgcct ctggctgagc caccocactt tgttgaacat  
 840  
 attagatcta ccttgatggt tttaaaaaaa caccatctc cagctcacac actgttttct  
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 1020  
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 1211

<210> 4568  
 <211> 120  
 <212> PRT  
 <213> Homo sapiens

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 35 40 45  
 Val Gln Gln Arg Glu Leu Ala Val Thr Ser Pro Lys Asp Gly Ser Ile  
 50 55 60  
 Ser Ile Leu Gly Ser Asp Ala Thr Thr Cys His Ile Val Val Leu  
 65 70 75 80  
 Arg His Thr Gly Asn Gly Ala Thr Cys Leu Thr His Cys Asp Gly Thr  
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 Asp Thr Lys Ala Glu Val Pro Leu Ile Met Asn Ser Ile Lys Ser Phe  
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 Ser Asp His Ala Gln Cys Gly Arg  
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<210> 4569  
 <211> 1797  
 <212> DNA  
 <213> Homo sapiens

<400> 4569  
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 120  
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 180  
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 240

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600  
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660  
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720  
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780  
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840  
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900  
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960  
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1140  
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1200  
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1260  
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1320  
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&lt;210&gt; 4570

<211> 141  
 <212> PRT  
 <213> Homo sapiens

<400> 4570

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      20             25             30
Gln Thr Trp His Ile Arg Phe Gly Asp Asn Gly Leu Gly Thr Leu Met
      35             40             45
Leu Leu Gly Pro Gly Glu Thr Val Leu Arg Gln Lys Leu Gly Val Gln
      50             55             60
Gly Gly Pro Arg Val Arg His Cys Gly Glu Gly Asn Ala Gly Glu Ser
  65             70             75             80
Gly Pro Thr Leu Gln Leu Gly Thr Arg Gly Arg Lys Gln Arg Gly Gln
      85             90             95
Ala Ser Val Pro Leu Pro Gln Glu Gln Thr Ser Gly Pro Gln Glu Gly
      100            105            110
Leu Gln Ala Ala Arg Ser Leu Pro Ser Ala Gly Gly Ser Arg Gly Arg
      115            120            125
Lys Gly Trp Arg Ala Ala Gly Arg Gln Pro Ser Thr Arg
      130            135            140

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<210> 4571  
 <211> 1084  
 <212> DNA  
 <213> Homo sapiens

<400> 4571

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aacgagaaga gaaaagaaat gctgggaacg cagtacggag cgccatgaag tccgaggaac
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agaagatcaa agacgccagg aaaggtcccc tggtaccttt tccaaaccaa aaatctgaag
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  720

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 1084

<210> 4572

<211> 126

<212> PRT

<213> Homo sapiens

<400> 4572

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Ser | Pro | Ser | Arg | Ala | Asn | Arg | Pro | Pro | Glu | Lys | Lys | Ala | Gln | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Lys | Thr | Gln | Gln | Asn | Arg | Lys | Leu | Thr | Asp | Phe | Tyr | Pro | Val | Arg | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Ser | Arg | Lys | Ser | Lys | Ala | Glu | Leu | Gln | Ser | Glu | Glu | Arg | Lys | Arg |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ile | Asp | Glu | Leu | Ile | Glu | Ser | Gly | Lys | Glu | Glu | Gly | Met | Lys | Ile | Asp |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Leu | Ile | Asp | Gly | Lys | Gly | Arg | Gly | Val | Ile | Ala | Thr | Lys | Gln | Phe | Ser |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Arg | Gly | Asp | Phe | Val | Glu | Tyr | His | Gly | Asp | Leu | Ile | Glu | Ile | Thr |     |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Asp | Ala | Lys | Lys | Arg | Glu | Ala | Leu | Tyr | Ala | Gln | Asp | Pro | Ser | Thr | Gly |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Cys | Tyr | Met | Tyr | Tyr | Phe | Gln | Tyr | Leu | Ser | Lys | Thr | Tyr | Trp |     |     |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |

<210> 4573

<211> 309

<212> DNA

<213> Homo sapiens

<400> 4573

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 120  
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309

<210> 4574  
<211> 103  
<212> PRT  
<213> Homo sapiens

<400> 4574  
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35 40 45  
Ala Gly Ala Val Gly Thr Pro Gly Lys Arg Gly Pro Ser Gly Pro Gln  
50 55 60  
Gly Leu Leu Gly Pro Pro Gly Pro Pro Ala Pro Val Gly Pro Pro His  
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<210> 4575  
<211> 1068  
<212> DNA  
<213> Homo sapiens

<400> 4575  
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240  
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540  
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600  
aagggtttcc tgaaacagag ggttgcgggc tgaaagtggg atccgggcat cgtggacctc  
660  
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720



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840  
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960  
gctgggacta caggtgcccg ccaccacacc cacctaattt tcgtattttt agtagagacg  
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1068

&lt;210&gt; 4576

&lt;211&gt; 107

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4576

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Trp | Asp | Pro | Gly | Ile | Val | Asp | Leu | Asp | Asp | Thr | Val | His | Gln | Leu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Leu | His | Leu | Leu | Gln | Pro | Leu | Gly | His | Val | Ala | Arg | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Pro | Ala | Arg | His | Val | Ala | Thr | Ala | Gln | Gly | Glu | Val | Leu | Pro | Pro | Gly |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gly | Leu | Gly | Gly | Ala | Ala | Gln | Arg | Ala | Arg | Gly | Gln | Ser | His | Gly | Gly |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Thr | Val | Pro | Gly | Asn | Ala | Pro | Ala | Ala | Asp | Leu | Ala | Leu | Ser | Pro |     |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |     |
| Arg | Leu | Glu | Arg | Ser | Gly | Thr | Ile | Ser | Thr | His | Cys | Lys | Leu | Arg | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Pro | Gly | Ser | Arg | His | Ser | Pro | Ala | Ser | Ala | Ser |     |     |     |     |     |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     |     |     |

&lt;210&gt; 4577

&lt;211&gt; 3525

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4577

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420

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1800  
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1860  
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1920  
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1980  
gacgtggagg cctctgaagc tgaagaccac ttcttcaacc cagcctgag tatctccag  
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2100  
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2160  
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2220  
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&lt;210&gt; 4578

&lt;211&gt; 1007

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4578

```

Met Ser His Phe Pro Asp Arg Gly Ser Glu Asn Gly Thr Pro Met Asp
 1           5           10           15
Val Lys Ala Gly Val Arg Val Met Gln Val Ser Pro Asp Gly Gln His
          20           25           30
Leu Ala Ser Gly Asp Arg Ser Gly Asn Leu Arg Gln Val Gly Pro Gly
          35           40           45
Ser Val Gln Cys Thr Pro Pro Ser Ser Ser Ser Gly Ser Gln Gly Ser
          50           55           60
Gly Gln Lys Pro Trp Pro Trp His Leu Leu Leu Pro Ile Gly Asn Glu
65           70           75           80
Gly Leu Ile His Glu Leu His Phe Met Asp Glu Leu Val Lys Val Glu
          85           90           95
Ala His Asp Ala Glu Val Leu Cys Leu Glu Tyr Ser Lys Pro Glu Thr
          100          105          110
Gly Leu Thr Leu Leu Ala Ser Ala Ser Arg Asp Arg Leu Ile His Val
          115          120          125
Leu Asn Val Glu Lys Asn Tyr Asn Leu Glu Gln Thr Leu Asp Asp His
          130          135          140
Ser Ser Ser Ile Thr Ala Ile Lys Phe Ala Gly Asn Arg Asp Ile Gln
145          150          155          160
Met Ile Ser Cys Gly Ala Asp Lys Ser Ile Tyr Phe Arg Ser Ala Gln
          165          170          175
Gln Gly Ser Asp Gly Leu His Phe Val Arg Thr His His Val Ala Glu
          180          185          190
Lys Thr Thr Leu Tyr Asp Met Asp Ile Asp Ile Thr Gln Lys Tyr Val
          195          200          205
Ala Val Ala Cys Gln Asp Arg Asn Val Arg Val Tyr Asn Thr Val Asn
          210          215          220
Gly Lys Gln Lys Lys Cys Tyr Lys Gly Ser Gln Gly Asp Glu Gly Ser
225          230          235          240
Leu Leu Lys Val His Val Asp Pro Ser Gly Thr Phe Leu Ala Thr Ser
          245          250          255
Cys Ser Asp Lys Ser Ile Ser Val Ile Asp Phe Tyr Ser Gly Glu Cys
          260          265          270
Ile Ala Lys Met Phe Gly His Ser Gly Gly Cys Ala Ser Leu Leu Gly
          275          280          285
Met Pro Pro His Pro Pro Thr Pro Ser Asp Ser Glu Gly Lys Cys Ser
          290          295          300
Leu Ser Ala Leu Phe Ala Glu Ile Ile Thr Ser Met Lys Phe Thr Tyr
305          310          315          320
Asp Cys His His Leu Ile Thr Val Ser Gly Asp Ser Cys Val Phe Ile
          325          330          335
Trp His Leu Gly Pro Glu Ile Thr Asn Cys Met Lys Gln His Leu Leu
          340          345          350
Glu Ile Asp His Arg Gln Gln Gln His Thr Asn Asp Lys Lys Arg
          355          360          365
Ser Gly His Pro Arg Ser Trp Gln Pro Leu Pro Val His Gln Arg Asp
          370          375          380
Glu Ser Leu Pro Gly Pro His Gly Val Met Leu Gly Thr Gln Ser Ser
385          390          395          400
Leu Pro Ala Asn Gln Arg Gln Ala Ala Thr Val Gly Lys Ala Ala Gly

```

**3775**

```

      835              840              845
Pro Ser Leu Pro Ala Pro Glu Ser Pro Gly Leu Pro Ala His Pro Ser
      850              855              860
Asn Pro Gln Leu Pro Glu Ala Arg Pro Gly Ile Pro Gly Gly Thr Ala
865              870              875              880
Ser Leu Leu Glu Pro Thr Ser Gly Trp Gly Thr Ser Cys Thr Gly Cys
      885              890              895
Arg Pro Pro Ser Lys Lys Pro Ser Thr Phe Thr Val Cys Trp Ser Pro
      900              905              910
Val Ala Arg Trp Thr Pro Gly Ser Ser Arg His Gly Leu Ser Trp Ser
      915              920              925
Pro Pro Ser Cys Gly Ser Thr Ala Ser Trp Arg Leu Asn Ala Trp Trp
      930              935              940
Gly Leu Val Trp Pro Gln Pro Arg Leu Cys Pro Ala Gln Asp Pro Arg
945              950              955              960
Pro His Arg Arg Cys Thr Pro Trp Pro Ala Gln Thr Cys Arg Pro Cys
      965              970              975
Trp Asn Thr Thr Arg Ser Cys Trp Cys Arg Pro Cys Gly Gly Arg His
      980              985              990
Gly Gly Thr Glu Gly Ala Ala Pro Pro Pro Gln Pro Cys Cys Phe
      995              1000              1005

```

<210> 4579  
 <211> 321  
 <212> DNA  
 <213> Homo sapiens

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<400> 4579
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120
accaactgca tgaagcagca cttgctggag attgaccacc ggcagcagca gcagcacaca
180
aatgacaaga agcggagtgg cccccccagg caggatacgt atgtgtccac acctagttag
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300
gaagagatgc tgaagacacc n
321

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<210> 4580  
 <211> 107  
 <212> PRT  
 <213> Homo sapiens

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<400> 4580
Xaa Lys Met Phe Gly His Ser Glu Ile Ile Thr Ser Met Lys Phe Thr
1      5      10      15
Tyr Asp Cys His His Leu Ile Thr Val Ser Gly Asp Ser Cys Val Phe
20      25      30
Ile Trp His Leu Gly Pro Glu Ile Thr Asn Cys Met Lys Gln His Leu
35      40      45
Leu Glu Ile Asp His Arg Gln Gln Gln Gln His Thr Asn Asp Lys Lys

```

|   |    |     |    |    |
|---|----|-----|----|----|
| 50  |    | 55  |    | 60 |
| Arg Ser Gly Pro Pro Arg Gln Asp Thr Tyr Val Ser Thr Pro Ser Glu |    |     |    |    |
| 65  |    | 70  |    | 75 |
| Ile His Ser Leu Ser Pro Gly Glu Gln Thr Glu Asp Asp Leu Glu Glu |    |     |    | 80 |
|   | 85 |     | 90 | 95 |
| Glu Cys Glu Pro Glu Glu Met Leu Lys Thr Pro                     |    |     |    |    |
| 100   |    | 105 |    |    |

&lt;210&gt; 4581

&lt;211&gt; 1396

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4581

```

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120
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240
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360
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420
caggaggagc tgatgaaggc cttcgagacg cccgaggaga agcgcgcacg gcggctggcc
480
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600
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1200

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 1396

<210> 4582  
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 <212> PRT  
 <213> Homo sapiens

<400> 4582  
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 Glu Leu Met Lys Ala Phe Glu Thr Pro Glu Glu Lys Arg Ala Arg Arg  
 35 40 45  
 Leu Ala Lys Lys Glu Ala Lys Glu Arg Lys Lys Arg Glu Lys Met Gly  
 50 55 60  
 Trp Gly Glu Glu Tyr Met Gly Tyr Thr Asn Thr Asp Asn Pro Phe Gly  
 65 70 75 80  
 Asp Asn Asn Leu Leu Gly Thr Phe Ile Trp Asn Lys Ala Leu Glu Lys  
 85 90 95  
 Lys Gly Ile Ser His Leu Glu Glu Lys Glu Leu Lys Glu Arg Asn Lys  
 100 105 110  
 Arg Ile Gln Glu Asp Asn Arg Leu Glu Leu Gln Lys Val Lys Gln Leu  
 115 120 125  
 Arg Leu Glu Arg Glu Arg Glu Lys Ala Met Arg Glu Gln Glu Leu Glu  
 130 135 140  
 Met Leu Gln Arg Val Lys Gly Thr Glu His Phe Lys Thr Trp Glu Glu  
 145 150 155 160  
 Gln Glu Asp Asn Phe His Leu Gln Gln Ala Lys Leu Arg Ser Lys Ile  
 165 170 175  
 Arg Ile Arg Asp Gly Arg Ala Lys Pro Ile Asp Leu Leu Ala Lys Tyr  
 180 185 190  
 Ile Ser Ala Glu Asp Asp Asp Leu Ala Gly Glu Met His Glu Pro Tyr  
 195 200 205  
 Thr Phe Leu Asn Gly Leu Thr Val Ala Asp Met Glu Asp Leu Leu Glu  
 210 215 220  
 Asp Ile Gln Val Tyr Met Glu Leu Glu Gln Gly Lys Asn Ala Asp Phe  
 225 230 235 240  
 Trp Arg Asp Met Thr Thr Ile Thr Glu Asp Glu Ile Ser Lys Leu Arg  
 245 250 255  
 Lys Leu Glu Ala Ser Gly Lys Gly Pro Gly Glu Arg Arg Glu Gly Val  
 260 265 270  
 Asn Ala Ser Val Ser Ser Asp Val Gln Ser Val Phe Lys Gly Lys Thr  
 275 280 285  
 Tyr Asn Gln Leu Gln Val Ile Phe Gln Gly Ile Glu Gly Lys Ile Arg  
 290 295 300  
 Ala Gly Gly Pro Asn Leu Asp Met Gly Tyr Trp Glu Ser Leu Leu Gln



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 305 |     | 310 |     | 315 |     | 320 |     |     |     |     |     |     |     |     |     |
| Gln | Leu | Arg | Ala | His | Met | Ala | Arg | Ala | Arg | Leu | Arg | Glu | Arg | His | Gln |
|     |     |     |     | 325 |     |     |     |     |     | 330 |     |     |     | 335 |     |
| Asp | Val | Leu | Arg | Gln | Lys | Leu | Tyr | Lys | Leu | Lys | Gln | Glu | Gln | Gly | Val |
|     |     |     |     | 340 |     |     |     |     |     | 345 |     |     |     | 350 |     |
| Glu | Ser |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4583

&lt;211&gt; 3350

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4583

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180
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240
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1200

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<210> 4584

<211> 923

<212> PRT

<213> Homo sapiens

<400> 4584

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Gly | Ala | Lys | Pro | Thr | Leu | Gln | Leu | Val | Tyr | Gln | Ala | Val | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Leu | Tyr | His | Asp | Pro | Asp | Pro | Ser | Gly | Lys | Glu | Arg | Ala | Ser | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Trp | Leu | Gly | Glu | Leu | Gln | Arg | Ser | Val | His | Ala | Trp | Glu | Ile | Ser | Asp |
|     | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gln | Leu | Leu | Gln | Ile | Arg | Gln | Asp | Val | Glu | Ser | Cys | Tyr | Phe | Ala | Ala |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gln | Thr | Met | Lys | Met | Lys | Ile | Gln | Thr | Ser | Phe | Tyr | Glu | Leu | Pro | Thr |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Asp | Ser | His | Ala | Ser | Leu | Arg | Asp | Ser | Leu | Leu | Thr | His | Ile | Gln | Asn |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Leu | Lys | Asp | Leu | Ser | Pro | Val | Ile | Val | Thr | Gln | Leu | Ala | Leu | Ala | Ile |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ala | Asp | Leu | Ala | Leu | Gln | Met | Pro | Ser | Trp | Lys | Gly | Cys | Val | Gln | Thr |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Leu | Val | Glu | Lys | Tyr | Ser | Asn | Asp | Val | Thr | Ser | Leu | Pro | Phe | Leu | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Glu | Ile | Leu | Thr | Val | Leu | Pro | Glu | Glu | Val | His | Ser | Arg | Ser | Leu | Arg |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Ile | Gly | Ala | Asn | Arg | Arg | Thr | Glu | Ile | Ile | Glu | Asp | Leu | Ala | Phe | Tyr |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ser | Ser | Thr | Val | Ser | Leu | Leu | Met | Thr | Cys | Val | Glu | Lys | Ala | Gly |     |
|     |     |     | 180 |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| Thr | Asp | Glu | Lys | Met | Leu | Met | Lys | Val | Phe | Arg | Cys | Leu | Gly | Ser | Trp |
|     |     |     | 195 |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Phe | Asn | Leu | Gly | Val | Leu | Asp | Ser | Asn | Phe | Met | Ala | Asn | Asn | Lys | Leu |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Leu | Ala | Leu | Leu | Phe | Glu | Val | Leu | Gln | Gln | Asp | Lys | Thr | Ser | Ser | Asn |

|                             |                         |                     |         |     |  |     |
|-----------------------------|-------------------------|---------------------|---------|-----|--|-----|
| 225                         |                         | 230                 |         | 235 |  | 240 |
| Leu His Glu Ala             | Ala Ser Asp Cys Val     | Cys Ser Ala Leu Tyr | Ala Ile |     |  |     |
|                             | 245                     | 250                 | 255     |     |  |     |
| Glu Asn Val Glu Thr         | Asn Leu Pro Leu         | Ala Met Gln Leu Phe | Gln Gly |     |  |     |
|                             | 260                     | 265                 | 270     |     |  |     |
| Val Leu Thr Leu Glu Thr     | Ala Tyr His Met         | Ala Val Ala Arg     | Glu Asp |     |  |     |
|                             | 275                     | 280                 | 285     |     |  |     |
| Leu Asp Lys Val Leu Asn Tyr | Cys Arg Ile Phe Thr     | Glu Leu Cys Glu     |         |     |  |     |
|                             | 290                     | 295                 | 300     |     |  |     |
| Thr Phe Leu Glu Lys Ile Val | Cys Thr Pro Gly Gln     | Gly Leu Gly Asp     |         |     |  |     |
| 305                         | 310                     | 315                 | 320     |     |  |     |
| Leu Arg Thr Leu Glu Leu Leu | Ile Cys Ala Gly His     | Pro Gln Tyr         |         |     |  |     |
|                             | 325                     | 330                 | 335     |     |  |     |
| Glu Val Val Glu Ile Ser Phe | Asn Phe Trp Tyr Arg     | Leu Gly Glu His     |         |     |  |     |
|                             | 340                     | 345                 | 350     |     |  |     |
| Leu Tyr Lys Thr Asn Asp Glu | Val Ile His Gly Ile     | Phe Lys Ala Tyr     |         |     |  |     |
|                             | 355                     | 360                 | 365     |     |  |     |
| Ile Gln Arg Leu Leu His Ala | Leu Ala Arg His         | Cys Gln Leu Glu Pro |         |     |  |     |
|                             | 370                     | 375                 | 380     |     |  |     |
| Asp His Glu Gly Val Pro Glu | Glu Thr Asp Asp Phe Gly | Glu Phe Arg         |         |     |  |     |
| 385                         | 390                     | 395                 | 400     |     |  |     |
| Met Arg Val Ser Asp Leu Val | Lys Asp Leu Ile Phe Leu | Ile Gly Ser         |         |     |  |     |
|                             | 405                     | 410                 | 415     |     |  |     |
| Met Glu Cys Phe Ala Gln Leu | Tyr Ser Thr Leu Lys Glu | Gly Asn Pro         |         |     |  |     |
|                             | 420                     | 425                 | 430     |     |  |     |
| Pro Trp Glu Val Thr Glu Ala | Val Leu Phe Ile Met Ala | Ala Ile Ala         |         |     |  |     |
|                             | 435                     | 440                 | 445     |     |  |     |
| Lys Ser Val Asp Pro Glu Asn | Asn Pro Thr Leu Val Glu | Val Leu Glu         |         |     |  |     |
|                             | 450                     | 455                 | 460     |     |  |     |
| Gly Val Val Arg Leu Pro Glu | Thr Val His Thr Ala Val | Arg Tyr Thr         |         |     |  |     |
| 465                         | 470                     | 475                 | 480     |     |  |     |
| Ser Ile Glu Leu Val Gly Glu | Met Ser Glu Val Val Asp | Arg Asn Pro         |         |     |  |     |
|                             | 485                     | 490                 | 495     |     |  |     |
| Gln Phe Leu Asp Pro Val Leu | Gly Tyr Leu Met Lys Gly | Leu Cys Glu         |         |     |  |     |
|                             | 500                     | 505                 | 510     |     |  |     |
| Lys Pro Leu Ala Ser Ala Ala | Ala Lys Ala Ile His Asn | Ile Cys Ser         |         |     |  |     |
|                             | 515                     | 520                 | 525     |     |  |     |
| Val Cys Arg Asp His Met Ala | Gln His Phe Asn Gly Leu | Leu Glu Ile         |         |     |  |     |
|                             | 530                     | 535                 | 540     |     |  |     |
| Ala Arg Ser Leu Asp Ser Phe | Leu Leu Ser Pro Glu Ala | Ala Val Gly         |         |     |  |     |
| 545                         | 550                     | 555                 | 560     |     |  |     |
| Leu Leu Lys Gly Thr Ala Leu | Val Leu Ala Arg Leu Pro | Leu Asp Lys         |         |     |  |     |
|                             | 565                     | 570                 | 575     |     |  |     |
| Ile Thr Glu Cys Leu Ser Glu | Leu Cys Ser Val Gln Val | Met Ala Leu         |         |     |  |     |
|                             | 580                     | 585                 | 590     |     |  |     |
| Lys Lys Leu Ser Gln Glu Pro | Ser Asn Gly Ile Ser Ser | Asp Pro             |         |     |  |     |
|                             | 595                     | 600                 | 605     |     |  |     |
| Thr Val Phe Leu Asp Arg Leu | Ala Val Ile Phe Arg His | Thr Asn Pro         |         |     |  |     |
|                             | 610                     | 615                 | 620     |     |  |     |
| Ile Val Glu Asn Gly Gln Thr | His Pro Cys Gln Lys Val | Ile Gln Glu         |         |     |  |     |
| 625                         | 630                     | 635                 | 640     |     |  |     |
| Ile Trp Pro Val Leu Ser Glu | Thr Leu Asn Lys His Arg | Ala Asp Asn         |         |     |  |     |
|                             | 645                     | 650                 | 655     |     |  |     |
| Arg Ile Val Glu Arg Cys Cys | Arg Cys Leu Arg Phe Ala | Val Arg Cys         |         |     |  |     |

|   |                                     |     |
|---|-------------------------------------|-----|
| 660   | 665                                 | 670 |
| Val Gly Lys Gly Ser Ala Ala                                     | Leu Leu Gln Pro Leu Val Thr Gln Met |     |
| 675   | 680                                 | 685 |
| Val Asn Val Tyr His Val His                                     | Gln His Ser Cys Phe Leu Tyr Leu Gly |     |
| 690   | 695                                 | 700 |
| Ser Ile Leu Val Asp Glu Tyr Gly Met Glu Glu Gly Cys Arg Gln Gly |                                     |     |
| 705   | 710                                 | 715 |
| Leu Leu Asp Met Leu Gln Ala Leu Cys Ile Pro Thr Phe Gln Leu Leu |                                     |     |
| 725   | 730                                 | 735 |
| Glu Gln Gln Asn Gly Leu Gln Asn His Pro Asp Thr Val Asp Asp Leu |                                     |     |
| 740   | 745                                 | 750 |
| Phe Arg Leu Ala Thr Arg Phe Ile Gln Arg Ser Pro Val Thr Leu Leu |                                     |     |
| 755   | 760                                 | 765 |
| Arg Ser Gln Val Val Ile Pro Ile Leu Gln Trp Ala Ile Ala Ser Thr |                                     |     |
| 770   | 775                                 | 780 |
| Thr Leu Asp His Arg Asp Ala Asn Cys Ser Val Met Arg Phe Leu Arg |                                     |     |
| 785   | 790                                 | 795 |
| Asp Leu Ile His Thr Gly Val Ala Asn Asp His Glu Glu Asp Phe Glu |                                     |     |
| 805   | 810                                 | 815 |
| Leu Arg Lys Glu Leu Ile Gly Gln Val Met Asn Gln Leu Gly Gln Gln |                                     |     |
| 820   | 825                                 | 830 |
| Leu Val Ser Gln Leu Leu His Thr Cys Cys Phe Cys Leu Pro Pro Tyr |                                     |     |
| 835   | 840                                 | 845 |
| Thr Leu Pro Asp Val Ala Glu Val Leu Trp Glu Ile Met Gln Val Asp |                                     |     |
| 850   | 855                                 | 860 |
| Arg Pro Thr Phe Cys Arg Trp Leu Glu Asn Ser Leu Lys Gly Leu Pro |                                     |     |
| 865   | 870                                 | 875 |
| Lys Glu Thr Thr Val Gly Ala Val Thr Val Thr His Lys Gln Leu Thr |                                     |     |
| 885   | 890                                 | 895 |
| Asp Phe His Lys Gln Val Thr Ser Ala Glu Glu Cys Lys Gln Val Cys |                                     |     |
| 900   | 905                                 | 910 |
| Trp Ala Leu Arg Asp Phe Thr Arg Leu Phe Arg                     |                                     |     |
| 915   | 920                                 |     |

&lt;210&gt; 4585

&lt;211&gt; 1952

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4585

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&lt;210&gt; 4586

<211> 530  
 <212> PRT  
 <213> Homo sapiens

<400> 4586

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      20           25           30
Lys Asp Val His Lys Gly Val Gly Gly Ile Ile Phe Ser Ser Ser Pro
      35           40           45
Ile Leu Asp Leu Ser Glu Ser Gly Leu Cys Arg Leu Glu Glu Val Phe
      50           55           60
Arg Ile Pro Ser Leu Gln Gln Leu His Leu Gln Arg Asn Ala Leu Cys
65           70           75           80
Val Ile Pro Gln Asp Phe Phe Gln Leu Leu Pro Asn Leu Thr Trp Leu
      85           90           95
Asp Leu Arg Tyr Asn Arg Ile Lys Ala Leu Pro Ser Gly Ile Gly Ala
      100          105          110
His Gln His Leu Lys Thr Leu Leu Leu Glu Arg Asn Pro Ile Lys Met
      115          120          125
Leu Pro Val Glu Leu Gly Ser Val Thr Thr Leu Lys Ala Leu Asn Leu
      130          135          140
Arg His Cys Pro Leu Glu Phe Pro Pro Gln Leu Val Val Gln Lys Gly
145          150          155          160
Leu Val Ala Ile Gln Arg Phe Leu Arg Met Trp Ala Val Glu His Ser
      165          170          175
Leu Pro Arg Asn Pro Thr Ser Gln Glu Ala Pro Pro Val Arg Glu Met
      180          185          190
Thr Leu Arg Asp Leu Pro Ser Pro Gly Leu Glu Leu Ser Gly Asp His
      195          200          205
Ala Ser Asn Gln Gly Ala Val Asn Ala Gln Asp Pro Glu Gly Ala Val
      210          215          220
Met Lys Glu Lys Ala Ser Phe Leu Pro Pro Val Glu Lys Pro Asp Leu
225          230          235          240
Ser Glu Leu Arg Lys Ser Ala Asp Ser Ser Glu Asn Trp Pro Ser Glu
      245          250          255
Glu Glu Ile Arg Arg Phe Trp Lys Leu Arg Gln Glu Ile Val Glu His
      260          265          270
Val Lys Ala Asp Val Leu Gly Asp Gln Leu Leu Thr Arg Glu Leu Pro
      275          280          285
Pro Asn Leu Lys Ala Ala Leu Asn Ile Glu Lys Glu Leu Pro Lys Pro
      290          295          300
Arg His Val Phe Arg Arg Lys Thr Ala Ser Ser Arg Ser Ile Leu Pro
305          310          315          320
Asp Leu Leu Ser Pro Tyr Gln Met Ala Ile Arg Ala Lys Arg Leu Glu
      325          330          335
Glu Ser Arg Ala Ala Ala Leu Arg Glu Leu Gln Glu Lys Gln Ala Leu
      340          345          350
Met Glu Gln Arg Arg Glu Lys Arg Ala Leu Gln Glu Trp Arg Glu
      355          360          365
Arg Ala Gln Arg Met Arg Lys Arg Lys Glu Glu Leu Ser Lys Leu Leu
      370          375          380
Pro Pro Arg Arg Ser Met Val Ala Ser Lys Ile Pro Ser Ala Thr Asp

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385                      390                      395                      400  
 Leu Ile Asp Asn Arg Lys Val Pro Leu Asn Pro Pro Gly Lys Met Lys  
                                  405                      410                      415  
 Pro Ser Lys Glu Lys Ser Pro Gln Ala Ser Lys Glu Met Ser Ala Leu  
                                  420                      425                      430  
 Gln Glu Arg Asn Leu Glu Glu Lys Ile Lys Gln His Val Leu Gln Met  
                                  435                      440                      445  
 Arg Glu Gln Arg Arg Phe His Gly Gln Ala Pro Leu Glu Glu Met Arg  
                                  450                      455                      460  
 Lys Ala Ala Glu Asp Leu Glu Ile Ala Thr Glu Leu Gln Asp Glu Val  
 465                                   470                      475                      480  
 Leu Lys Leu Lys Leu Gly Leu Thr Leu Asn Lys Asp Arg Arg Arg Ala  
                                  485                      490                      495  
 Ala Leu Thr Gly Asn Leu Ser Leu Gly Leu Pro Ala Ala Gln Pro Gln  
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 Tyr Gln  
 530

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 <212> DNA  
 <213> Homo sapiens

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 840



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 1723

&lt;210&gt; 4588

&lt;211&gt; 328

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4588

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Asn | Phe | Val | Lys | Lys | Arg | Arg | Leu | Leu | Glu | Arg | Arg | Gly | Phe | Leu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Ser | Lys | Lys | Asn | Gln | Pro | Pro | Ser | Lys | Ala | Pro | Lys | Leu | His | Ser | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Pro | Ser | Lys | Lys | Gly | Glu | Thr | Pro | Thr | Val | Asp | Gly | Thr | Trp | Lys | Thr |
|     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |     |
| Pro | Ser | Phe | Pro | Lys | Lys | Lys | Thr | Ala | Ala | Ser | Ser | Asn | Gly | Ser | Gly |
|     |     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Gln | Pro | Leu | Asp | Lys | Lys | Ala | Ala | Val | Ser | Trp | Leu | Thr | Pro | Ala | Pro |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |
| Ser | Lys | Lys | Ala | Asp | Ser | Val | Ala | Ala | Lys | Val | Asp | Leu | Leu | Gly | Glu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     | 95  |     |     |     |
| Phe | Gln | Ser | Ala | Leu | Pro | Lys | Ile | Asn | Ser | His | Pro | Thr | Arg | Ser | Gln |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Lys | Lys | Ser | Ser | Gln | Lys | Lys | Ser | Ser | Lys | Lys | Asn | His | Pro | Gln | Lys |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Asn | Ala | Pro | Gln | Asn | Ser | Thr | Gln | Ala | His | Ser | Glu | Asn | Lys | Cys | Ser |

|   |     |     |
|---|-----|-----|
| 130   | 135 | 140 |
| Gly Ala Ser Gln Lys Leu Pro Arg Lys Met Val Ala Ile Asp Cys Glu |     |     |
| 145   | 150 | 155 |
| Met Val Gly Thr Gly Pro Lys Gly His Val Ser Ser Leu Ala Arg Cys |     | 160 |
|   | 165 | 170 |
| Ser Ile Val Asn Tyr Asn Gly Asp Val Leu Tyr Asp Glu Tyr Ile Leu |     | 175 |
|   | 180 | 185 |
| Pro Pro Cys His Ile Val Asp Tyr Arg Thr Arg Trp Ser Gly Ile Arg |     | 190 |
|   | 195 | 200 |
| Lys Gln His Met Val Asn Ala Thr Pro Phe Lys Ile Ala Arg Gly Gln |     | 205 |
|   | 210 | 215 |
| Ile Leu Lys Ile Leu Thr Gly Lys Ile Val Val Gly His Ala Ile His |     | 220 |
| 225   | 230 | 235 |
| Asn Asp Phe Lys Ala Leu Gln Tyr Phe His Pro Lys Ser Leu Thr Arg |     | 240 |
|   | 245 | 250 |
| Asp Thr Ser His Ile Pro Pro Leu Asn Arg Lys Ala Asp Cys Pro Glu |     | 255 |
|   | 260 | 265 |
| Asn Ala Thr Met Ser Leu Lys His Leu Thr Lys Lys Leu Leu Asn Arg |     | 270 |
|   | 275 | 280 |
| Asp Ile Gln Val Gly Lys Ser Gly His Ser Ser Val Glu Asp Ala Gln |     | 285 |
|   | 290 | 295 |
| Ala Thr Met Glu Leu Tyr Lys Leu Val Glu Val Glu Trp Glu Glu His |     | 300 |
| 305   | 310 | 315 |
| Leu Ala Arg Asn Pro Pro Thr Asp                                 |     | 320 |
|   | 325 |     |

&lt;210&gt; 4589

&lt;211&gt; 585

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4589

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&lt;210&gt; 4590

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           20                  25                  30  
 Gly Val Arg Val Ser Ala Ala Pro Leu Gly Gln Gly Gly Gly His Thr  
           35                  40                  45  
 His Thr Leu Ser Pro Leu Ser Phe Arg Cys Ser Gln Arg Glu Pro Gln  
           50                  55                  60  
 Gly Phe Arg Pro Gly Met Arg Cys Gly Gly Ser Ser Leu Gly Arg Thr  
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 <213> Homo sapiens

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<210> 4592  
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Lys Ala Ser Ser Ile Tyr Ser Thr Ala Leu Cys Phe Gly Leu Lys Arg
35           40           45
Ala Pro Leu Trp Pro Ser Gly His Asp Arg Leu His Glu Thr Arg Lys
50           55           60
Leu Arg Cys Leu Ala Asp Arg Leu Val Ser Pro His Pro Ala Ser Ser
65           70           75           80
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&lt;210&gt; 4593

&lt;211&gt; 4783

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4593

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<211> 1145

<212> PRT

<213> Homo sapiens

<400> 4594

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| Asn | His | Glu | Asn | Leu | Phe | Leu | Gln | Pro | Pro | Lys | Leu | Ser | Arg | Glu | Glu |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     | 15  |     |     |     |     |
| Pro | Ser | Asn | Pro | Phe | Leu | Ala | Phe | Val | Glu | Lys | Val | Glu | His | Ser | Pro |
|     |     | 20  |     |     |     |     |     | 25  |     |     | 30  |     |     |     |     |
| Phe | Ser | Ser | Phe | Ala | Ser | Gln | Ala | Ser | Gly | Ser | Ser | Ser | Ser | Ala | Thr |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Thr | Val | Thr | Ser | Lys | Val | Ala | Pro | Ser | Trp | Pro | Glu | Ser | His | Ser | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ala | Asp | Ser | Ala | Ser | Leu | Ala | Lys | Lys | Lys | Pro | Leu | Phe | Ile | Thr | Thr |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Asp | Ser | Ser | Lys | Leu | Val | Ser | Gly | Val | Leu | Gly | Ser | Ala | Leu | Thr | Ser |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
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|     |     | 100 |     |     |     |     |     | 105 |     |     |     | 110 |     |     |     |
| Thr | Ser | Ser | Leu | Thr | Gln | Pro | Ile | Glu | Met | Pro | Thr | Leu | Ser | Ser | Ser |
|     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Pro | Thr | Glu | Glu | Arg | Pro | Thr | Val | Gly | Pro | Gly | Gln | Gln | Asp | Asn | Pro |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Leu | Leu | Lys | Thr | Phe | Ser | Asn | Val | Phe | Gly | Arg | His | Ser | Gly | Gly | Phe |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Leu | Ser | Ser | Pro | Ala | Asp | Phe | Ser | Gln | Glu | Asn | Lys | Ala | Pro | Phe | Glu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
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3794



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| Gly Ser Leu Arg Ser Val   | Leu Asn Lys Glu Ser His Ser Pro Phe Gly |      |
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| Leu Asp Ser Phe Asn Ser Thr Ala Lys Val Ser Pro Leu Thr Pro Lys |   | 640  |
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| Leu Phe Asn Ser Leu Leu Leu Gly Pro Thr Ala Ser Asn Asn Lys Thr |   | 655  |
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| Glu Gly Ser Ser Leu Arg Asp Leu Leu His Ser Gly Pro Gly Lys Leu |   | 670  |
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| Pro Gln Thr Pro Leu Asp Thr Gly Ile Pro Phe Pro Pro Val Phe Ser |   | 685  |
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| Thr Ser Ser Ala Gly Val Lys Ser Lys Ala Ser Leu Pro Asn Phe Leu |   | 700  |
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| Asp His Ile Ile Ala Ser Val Val Glu Asn Lys Lys Thr Ser Asp Ala |   | 720  |
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| Ser Lys Arg Ala Cys Asn Leu Thr Asp Thr Gln Lys Glu Val Lys Glu |   | 735  |
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| Met Val Met Gly Leu Asn Val Leu Asp Pro His Thr Ser His Ser Trp |   | 750  |
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| Leu Cys Asp Gly Arg Leu Leu Cys Leu His Asp Pro Ser Asn Lys Asn |   | 765  |
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| Asn Trp Lys Ile Phe Arg Glu Cys Trp Lys Gln Gly Gln Pro Val Leu |   | 780  |
| 785   | 790                                     | 795  |
| Val Ser Gly Val His Lys Lys Leu Lys Ser Glu Leu Trp Lys Pro Glu |   | 800  |
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| Ala Phe Ser Gln Glu Phe Gly Asp Gln Asp Val Asp Leu Val Asn Cys |   | 815  |
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| Arg Asn Cys Ala Ile Ile Ser Asp Val Lys Val Arg Asp Phe Trp Asp |   | 830  |
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| Gly Phe Glu Ile Ile Cys Lys Arg Leu Arg Ser Glu Asp Gly Gln Pro |   | 845  |
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| Met Val Leu Lys Leu Lys Asp Trp Pro Pro Gly Glu Asp Phe Arg Asp |   | 860  |
| 865   | 870                                     | 875  |
| Met Met Pro Thr Arg Phe Glu Asp Leu Met Glu Asn Leu Pro Leu Pro |   | 880  |
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| Glu Tyr Thr Lys Arg Asp Gly Arg Leu Asn Leu Ala Ser Arg Leu Pro |   | 895  |
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| Ser Tyr Phe Val Arg Pro Asp Leu Gly Pro Lys Met Tyr Asn Ala Tyr |   | 910  |
|   | 915                                     | 920  |
| Gly Leu Ile Thr Ala Glu Asp Arg Arg Val Gly Thr Thr Asn Leu His |   | 925  |
|   | 930                                     | 935  |
| Leu Asp Val Ser Asp Ala Val Asn Val Met Val Tyr Val Gly Ile Pro |   | 940  |
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| Lys Pro Gly Ala Leu Trp His Ile Tyr Ala Ala Lys Asp Ala Glu Lys |   | 990  |
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| Lys Asn Ile Ile Tyr His Ala Val Lys Asp Ala Val Gly Thr Leu Lys |      |  |      |  |      |
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&lt;210&gt; 4595

&lt;211&gt; 935

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4595

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Leu Leu Ser Ala Pro Phe Cys Leu Leu Pro Ala Leu Ser Gln Ala Val
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      85           90           95
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&lt;210&gt; 4602

&lt;211&gt; 305

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4602

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Leu | Asn | Lys | Gln | Gln | Leu | Gln | Leu | Lys | Glu | Arg | Phe | Gln | Ala |
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| Phe | Leu | Asn | Gly | Glu | Thr | Gln | Ile | Val | Ala | Asp | Glu | Ala | Phe | Cys |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  | Asn |
| Ala | Val | Arg | Ser | Tyr | Tyr | Glu | Val | Phe | Leu | Lys | Ser | Asp | Arg | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     | Ala |
| Arg | Met | Val | Gln | Ser | Gly | Gly | Cys | Ser | Ala | Asn | Asp | Phe | Arg | Glu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     | Val |
| Phe | Lys | Lys | Asn | Ile | Glu | Lys | Arg | Val | Arg | Ser | Leu | Pro | Glu | Ile |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |
| Gly | Leu | Ser | Lys | Glu | Thr | Val | Leu | Ser | Ser | Trp | Ile | Ala | Lys | Tyr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |
| Ala | Ile | Tyr | Arg | Gly | Glu | Glu | Asp | Leu | Cys | Lys | Gln | Pro | Asn | Arg |
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|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     | Tyr |
| Glu | Met | Phe | Gln | Gln | Ile | Leu | Gly | Ile | Lys | Lys | Leu | Glu | His | Gln |
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| Leu | Tyr | Asn | Ala | Cys | Gln | Leu | Asp | Asn | Ala | Asp | Glu | Gln | Ala | Ala |
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| Lys | Glu | Arg | Lys | Phe | Pro | Lys | Phe | Ile | Ala | Lys | Asp | Met | Glu | Asn |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 | Met |
| Tyr | Ile | Glu | Glu | Leu | Arg | Ser | Ser | Val | Asn | Leu | Leu | Met | Ala | Asn |

|   |     |     |
|---|-----|-----|
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&lt;210&gt; 4603

&lt;211&gt; 2090

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4603

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&lt;210&gt; 4604

&lt;211&gt; 666

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4604

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|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Ile | Leu | Asp | Ser | Leu | Glu | Pro | Gln | Ser | Leu | Ala | Ser | Leu | Leu | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Glu | Ser | Glu | Ser | Pro | Gln | Glu | Ala | Gly | Arg | Gly | His | Pro | Ser | Phe | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Pro | Gln | Gln | Lys | Glu | Ser | Ser | Glu | Ala | Ser | Glu | Leu | Ile | Leu | Tyr | Ser |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |
| Leu | Glu | Ala | Glu | Val | Thr | Val | Thr | Gly | Thr | Asp | Ser | Gln | Tyr | Cys |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |
| Lys | Glu | Val | Glu | Ala | Gly | Pro | Gly | Asp | Gln | Gln | Gly | Asp | Ser | Tyr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 | Leu |
| Arg | Val | Ser | Ser | Asp | Ser | Pro | Lys | Asp | Gln | Ser | Pro | Pro | Glu | Asp |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     | Ser |
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|     | 130 |     |     |     |     | 135 |     |     |     | 140 |     |     |     | Ser |
| Pro | Ala | Pro | Pro | Pro | Asp | Pro | Ala | Pro | Arg | Phe | Ala | Thr | Ser | Leu |
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|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |
| Glu | Gly | Pro | Ser | Val | Pro | Ser | Ser | Ser | Leu | Pro | Gln | Thr | Pro | Glu |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     | 190 |     | Gln |
| Glu | Lys | Phe | Leu | Arg | His | His | Phe | Glu | Thr | Leu | Thr | Glu | Ser | Pro |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     | Cys |
| Arg | Ala | Leu | Gly | Asp | Val | Glu | Ala | Ser | Glu | Ala | Glu | Asp | His | Phe |
|     | 210 |     |     |     |     | 215 |     |     |     | 220 |     |     |     | Phe |
| Asn | Pro | Arg | Leu | Ser | Ile | Ser | Thr | Gln | Phe | Leu | Ser | Ser | Leu | Gln |
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|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 | Leu |
| Val | Lys | Ser | Pro | Glu | Val | Lys | Leu | Met | Asp | Arg | Gly | Gly | Ser | Gln |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 | Pro |
| Arg | Ala | Gly | Thr | Gly | Tyr | Ala | Ser | Pro | Asp | Arg | Thr | His | Val | Leu |
|     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     | Ala |
| Ala | Gly | Lys | Ala | Glu | Glu | Thr | Leu | Glu | Ala | Trp | Arg | Pro | Pro | Pro |
|     | 290 |     |     |     |     | 295 |     |     |     | 300 |     |     |     | Pro |
| Cys | Leu | Thr | Ser | Leu | Ala | Ser | Cys | Val | Pro | Ala | Ser | Ser | Val | Leu |
| 305 |     |     |     |     | 310 |     |     |     | 315 |     |     |     |     | Pro |
| Thr | Asp | Arg | Asn | Leu | Pro | Thr | Pro | Thr | Ser | Ala | Pro | Thr | Pro | Gly |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | Leu |
| Ala | Gln | Gly | Val | His | Ala | Pro | Ser | Thr | Cys | Ser | Tyr | Met | Glu | Ala |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 | Thr |
| Ala | Ser | Ser | Arg | Ala | Arg | Ile | Ser | Arg | Ser | Ile | Ser | Leu | Gly | Asp |
|     | 355 |     |     |     |     | 360 |     |     |     |     |     | 365 |     | Ser |
| Glu | Gly | Pro | Ile | Val | Ala | Thr | Leu | Ala | Gln | Pro | Leu | Arg | Arg | Pro |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     | Ser |
| Ser | Val | Gly | Glu | Leu | Ala | Ser | Leu | Gly | Gln | Glu | Leu | Gln | Ala | Ile |
| 385 |     |     |     |     | 390 |     |     |     | 395 |     |     |     |     | Thr |
| Thr | Ala | Thr | Thr | Pro | Ser | Leu | Asp | Ser | Glu | Gly | Gln | Glu | Pro | Ala |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | Leu |
| Arg | Ser | Trp | Gly | Asn | His | Glu | Ala | Arg | Ala | Asn | Leu | Arg | Leu | Thr |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 | Leu |
| Ser | Ser | Ala | Cys | Asp | Gly | Leu | Leu | Leu | Pro | Pro | Val | Asp | Thr | Gln |
|     | 435 |     |     |     |     | 440 |     |     |     |     |     | 445 |     | Pro |
| Gly | Val | Thr | Val | Pro | Ala | Val | Ser | Phe | Pro | Ala | Pro | Ser | Pro | Val |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     | Glu |
| Glu | Ser | Ala | Leu | Arg | Leu | His | Gly | Ser | Ala | Phe | Arg | Pro | Ser | Leu |
| 465 |     |     |     |     | 470 |     |     |     | 475 |     |     |     |     | Pro |
| Ala | Pro | Glu | Ser | Pro | Gly | Leu | Pro | Ala | His | Pro | Ser | Asn | Pro | Gln |
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 2760  
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&lt;210&gt; 4606

&lt;211&gt; 584

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4606

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Glu | His | Lys | Glu | Glu | Asn | Asp | His | Lys | Val | Phe | Tyr | Gly | Gly | Asp | 1   | 5   | 10  | 15  |
| Leu | Lys | Val | Asp | Cys | Val | Ala | Thr | Gly | Leu | Pro | Asn | Pro | Glu | Ile | Ser | 20  | 25  | 30  |     |
| Trp | Ser | Leu | Pro | Asp | Gly | Ser | Leu | Val | Asn | Ser | Phe | Met | Gln | Ser | Asp | 35  | 40  | 45  |     |
| Asp | Ser | Gly | Gly | Arg | Thr | Lys | Arg | Tyr | Val | Val | Phe | Asn | Asn | Gly | Thr | 50  | 55  | 60  |     |
| Leu | Tyr | Phe | Asn | Glu | Val | Gly | Met | Arg | Glu | Glu | Gly | Asp | Tyr | Thr | Cys | 65  | 70  | 75  | 80  |
| Phe | Ala | Glu | Asn | Gln | Val | Gly | Lys | Asp | Glu | Met | Arg | Val | Arg | Val | Lys | 85  | 90  | 95  |     |
| Val | Val | Thr | Ala | Pro | Ala | Thr | Ile | Arg | Asn | Lys | Thr | Cys | Leu | Ala | Val | 100 | 105 | 110 |     |
| Gln | Val | Pro | Tyr | Gly | Asp | Val | Val | Thr | Val | Ala | Cys | Glu | Ala | Lys | Gly | 115 | 120 | 125 |     |
| Glu | Pro | Met | Pro | Lys | Val | Thr | Trp | Leu | Ser | Pro | Thr | Asn | Lys | Val | Ile | 130 | 135 | 140 |     |
| Pro | Thr | Ser | Ser | Glu | Lys | Tyr | Gln | Ile | Tyr | Gln | Asp | Gly | Thr | Leu | Leu | 145 | 150 | 155 | 160 |
| Ile | Gln | Lys | Ala | Gln | Arg | Ser | Asp | Ser | Gly | Asn | Tyr | Thr | Cys | Leu | Val | 165 | 170 | 175 |     |
| Arg | Asn | Ser | Ala | Gly | Glu | Asp | Arg | Lys | Thr | Val | Trp | Ile | His | Val | Asn | 180 | 185 | 190 |     |
| Val | Gln | Pro | Pro | Lys | Ile | Asn | Gly | Asn | Pro | Asn | Pro | Ile | Thr | Thr | Val | 195 | 200 | 205 |     |
| Arg | Glu | Ile | Ala | Ala | Gly | Gly | Ser | Arg | Lys | Leu | Ile | Asp | Cys | Lys | Ala |     |     |     |     |

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      210              215              220
Glu Gly Ile Pro Thr Pro Arg Val Leu Trp Ala Phe Pro Glu Gly Val
225              230              235              240
Val Leu Pro Ala Pro Tyr Tyr Gly Asn Arg Ile Thr Val His Gly Asn
      245              250              255
Gly Ser Leu Asp Ile Arg Ser Leu Arg Lys Ser Asp Ser Val Gln Leu
      260              265              270
Val Cys Met Ala Arg Asn Glu Gly Gly Glu Ala Arg Leu Ile Leu Gln
      275              280              285
Leu Thr Val Leu Glu Pro Met Glu Lys Pro Ile Phe His Asp Pro Ile
      290              295              300
Ser Glu Lys Ile Thr Ala Met Ala Gly His Thr Ile Ser Leu Asn Cys
305              310              315              320
Ser Ala Ala Gly Thr Pro Thr Pro Ser Leu Val Trp Val Leu Pro Asn
      325              330              335
Gly Thr Asp Leu Gln Ser Gly Gln Gln Leu Gln Arg Phe Tyr His Lys
      340              345              350
Ala Asp Gly Met Leu His Ile Ser Gly Leu Ser Ser Val Asp Ala Gly
      355              360              365
Ala Tyr Arg Cys Val Ala Arg Asn Ala Ala Gly His Thr Glu Arg Leu
      370              375              380
Val Ser Leu Lys Val Gly Leu Lys Pro Glu Ala Asn Lys Gln Tyr His
385              390              395              400
Asn Leu Val Ser Ile Ile Asn Gly Glu Thr Leu Lys Leu Pro Cys Thr
      405              410              415
Pro Pro Gly Ala Gly Gln Gly Arg Phe Ser Trp Thr Leu Pro Asn Gly
      420              425              430
Met His Leu Glu Gly Pro Gln Thr Leu Gly Arg Val Ser Leu Leu Asp
      435              440              445
Asn Gly Thr Leu Thr Val Arg Glu Ala Ser Val Phe Asp Arg Gly Thr
      450              455              460
Tyr Val Cys Arg Met Glu Thr Glu Tyr Gly Pro Ser Val Thr Ser Ile
465              470              475              480
Pro Val Ile Val Ile Ala Tyr Pro Pro Arg Ile Thr Ser Glu Pro Thr
      485              490              495
Pro Val Ile Tyr Thr Arg Pro Gly Asn Thr Val Lys Leu Asn Cys Met
      500              505              510
Ala Met Gly Ile Pro Lys Ala Asp Ile Thr Trp Glu Leu Pro Asp Lys
      515              520              525
Ser His Leu Lys Ala Gly Val Gln Ala Arg Leu Tyr Gly Asn Arg Phe
      530              535              540
Leu His Pro Gln Gly Ser Leu Thr Ile Gln His Ala Thr Gln Arg Asp
545              550              555              560
Ala Gly Phe Tyr Lys Cys Met Ala Lys Asn Ile Leu Gly Ser Asp Ser
      565              570              575
Lys Thr Thr Tyr Ile His Val Phe
      580

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&lt;210&gt; 4607

&lt;211&gt; 456

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4607

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 120  
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 180  
 aagtgaatt gtcggcaaga gatgcggacc acccagctgg gccctgggcg cttccaaatg  
 240  
 acccaggagg tggctcgcga cgaatgcctt aatgtcaaac tagtgaatga agaacgaacg  
 300  
 ctggaagtag aaatagagcc tggggtgaga gacggcatgg agtaccctt tattggagaa  
 360  
 ggtgagcctc acgtggatgg gnagcctgga gatttacggg tccgaatcaa agttgtcaag  
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 456

<210> 4608

<211> 107

<212> PRT

<213> Homo sapiens

<400> 4608

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Val | Arg | Asn | Lys | Pro | Val | Ala | Arg | Gln | Ala | Pro | Gly | Lys | Arg | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Cys | Asn | Cys | Arg | Gln | Glu | Met | Arg | Thr | Thr | Gln | Leu | Gly | Pro | Gly | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Phe | Gln | Met | Thr | Gln | Glu | Val | Val | Cys | Asp | Glu | Cys | Pro | Asn | Val | Lys |
|     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |     |
| Leu | Val | Asn | Glu | Glu | Arg | Thr | Leu | Glu | Val | Glu | Ile | Glu | Pro | Gly | Val |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Arg | Asp | Gly | Met | Glu | Tyr | Pro | Phe | Ile | Gly | Glu | Gly | Glu | Pro | His | Val |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     | 80  |     |     |     |
| Asp | Gly | Xaa | Pro | Gly | Asp | Leu | Arg | Phe | Arg | Ile | Lys | Val | Val | Lys | His |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     | 95  |     |     |     |
| Pro | Ile | Phe | Glu | Arg | Arg | Gly | Asp | Asp | Leu | Tyr |     |     |     |     |     |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     |     |     |     |

<210> 4609

<211> 904

<212> DNA

<213> Homo sapiens

<400> 4609

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 180  
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 240  
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cgtttccac cccagacttg gctgtccgct ctgcggcctt cgggcccagc cctttcgggc  
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 420  
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 540  
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 660  
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 720  
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 780  
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 aaaa  
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<210> 4610  
 <211> 250  
 <212> PRT  
 <213> Homo sapiens

<400> 4610  
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 Ala Ala Arg Leu Gly Ala Gln Gly Arg Arg Val Val Leu Val Thr Ser  
 35 40 45  
 Gly Gly Thr Lys Val Pro Leu Glu Ala Arg Pro Val Arg Phe Leu Asp  
 50 55 60  
 Asn Phe Ser Ser Gly Arg Arg Gly Ala Thr Ser Ala Glu Ala Phe Leu  
 65 70 75 80  
 Ala Ala Gly Tyr Gly Val Leu Phe Leu Tyr Arg Ala Arg Ser Ala Phe  
 85 90 95  
 Pro Tyr Ala His Arg Phe Pro Pro Gln Thr Trp Leu Ser Ala Leu Arg  
 100 105 110  
 Pro Ser Gly Pro Ala Leu Ser Gly Leu Leu Ser Leu Glu Ala Glu Glu  
 115 120 125  
 Asn Ala Leu Pro Gly Phe Ala Glu Ala Leu Arg Ser Tyr Gln Glu Ala  
 130 135 140  
 Ala Ala Ala Gly Thr Phe Leu Ala Val Glu Phe Thr Thr Leu Ala Asp  
 145 150 155 160  
 Tyr Leu His Leu Leu Gln Ala Ala Ala Gln Ala Leu Asn Pro Leu Gly  
 165 170 175  
 Pro Ser Ala Met Phe Tyr Leu Ala Ala Ala Val Ser Asp Phe Tyr Val  
 180 185 190  
 Pro Val Ser Glu Met Pro Glu His Lys Ile Gln Ser Ser Gly Gly Pro



|     |                     |                     |                     |  |     |
|-----|---------------------|---------------------|---------------------|--|-----|
|     | 195                 |                     | 200                 |  | 205 |
| Leu | Gln Gly Lys Val Gln | Leu Glu Asp Ile Leu | His His Leu Glu Lys |  |     |
|     | 210                 | 215                 | 220                 |  |     |
| Glu | Glu Ile Asn Pro Leu | Ala Thr Thr Glu Glu | Gln Leu Cys Leu Val |  |     |
| 225 |                     | 230                 | 235                 |  | 240 |
| Leu | Ile Pro Ala Ser Thr | Val Lys Thr Gly     |                     |  |     |
|     | 245                 | 250                 |                     |  |     |

<210> 4611  
 <211> 1946  
 <212> DNA  
 <213> Homo sapiens

<400> 4611  
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 120  
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 1020  
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 1080  
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 1140  
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 1200

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 1260  
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 1320  
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 1380  
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 1620  
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 1680  
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 1740  
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 1800  
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 1860  
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 1920  
 tgtttgaaaa aaaaaaaaaa aaaaaa  
 1946

&lt;210&gt; 4612

&lt;211&gt; 532

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4612

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Arg | Pro | Asp | Trp | Lys | Ala | Gly | Ala | Gly | Pro | Gly | Gly | Pro | Pro | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Lys | Pro | Ala | Pro | Ser | Ser | Gln | Arg | Lys | Pro | Pro | Ala | Arg | Pro | Ser | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | Ala | Ala | Ala | Ile | Ala | Val | Ala | Ala | Ala | Glu | Glu | Glu | Arg | Arg | Leu |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |
| Arg | Gln | Arg | Asn | Arg | Leu | Arg | Leu | Glu | Glu | Asp | Lys | Pro | Ala | Val | Glu |
|     |     |     | 50  |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Arg | Cys | Leu | Glu | Glu | Leu | Val | Phe | Gly | Asp | Val | Glu | Asn | Asp | Glu | Asp |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Ala | Leu | Leu | Arg | Arg | Leu | Arg | Gly | Pro | Arg | Val | Gln | Glu | His | Glu | Asp |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Ser | Gly | Asp | Ser | Glu | Val | Glu | Asn | Glu | Ala | Lys | Gly | Asn | Phe | Pro | Pro |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gln | Lys | Lys | Pro | Val | Trp | Val | Asp | Glu | Glu | Asp | Glu | Asp | Glu | Glu | Met |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Val | Asp | Met | Met | Asn | Asn | Arg | Phe | Arg | Lys | Asp | Met | Met | Lys | Asn | Ala |
|     |     |     | 130 |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Glu | Ser | Lys | Leu | Ser | Lys | Asp | Asn | Leu | Lys | Lys | Arg | Leu | Lys | Glu |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |
| Glu | Phe | Gln | His | Ala | Met | Gly | Gly | Val | Pro | Ala | Trp | Ala | Glu | Thr | Thr |

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<210> 4613
<211> 454
<212> DNA
<213> Homo sapiens

<400> 4613
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 120  
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 180  
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 240  
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 300  
 tgacgttggg gccagacagg tgacaggaga gggagtggg cctcgtggg atagtggcaa  
 360  
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 420  
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 454

<210> 4614  
 <211> 117  
 <212> PRT  
 <213> Homo sapiens

<400> 4614  
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 Glu Phe Thr Asn Gly Asn Leu Thr Met Ser Asn Glu Phe His Cys Lys  
 35 40 45  
 Asp Phe Leu Ile Phe Thr Thr Gln Ile Leu Thr Ile Leu Gln Leu Arg  
 50 55 60  
 Ser Leu Asn Ile Ile Tyr Asn Lys Gln Asn Leu Val Asn Leu Gln Lys  
 65 70 75 80  
 Ser Asn Ala Leu Lys Lys His Gln Ser Leu Cys Met Cys Arg Thr Asp  
 85 90 95  
 Pro Ala Pro Gln Gly Asn Thr Ala Gly Thr Val Pro Arg Thr Leu Thr  
 100 105 110  
 Ser Val Ser Leu Leu  
 115

<210> 4615  
 <211> 1350  
 <212> DNA  
 <213> Homo sapiens

<400> 4615  
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 120  
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 180  
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<210> 4616

<211> 188

<212> PRT

<213> Homo sapiens

<400> 4616

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| Met | Ser | Ser | Leu | Glu | Ile | Ser | Ser | Ser | Cys | Phe | Ser | Leu | Glu | Thr | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Pro | Leu | Ser | Pro | Pro | Leu | Val | Glu | Asp | Ser | Ala | Phe | Glu | Pro | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Lys | Asp | Met | Asp | Glu | Val | Glu | Glu | Lys | Ser | Lys | Asp | Val | Ile | Asn |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Phe | Thr | Ala | Glu | Lys | Leu | Ser | Val | Asp | Glu | Val | Ser | Gln | Leu | Val | Ile |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Pro | Leu | Cys | Gly | Ala | Ile | Ser | Leu | Phe | Val | Gly | Thr | Thr | Arg | Asn |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Asn | Phe | Glu | Gly | Lys | Lys | Val | Ile | Ser | Leu | Glu | Tyr | Glu | Ala | Tyr | Leu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Pro | Met | Ala | Glu | Asn | Glu | Val | Arg | Lys | Ile | Cys | Ser | Asp | Ile | Arg | Gln |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Lys | Trp | Pro | Val | Lys | His | Ile | Ala | Val | Phe | His | Leu | Leu | Gly | Leu | Val |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Pro | Val | Ser | Glu | Ala | Ser | Thr | Val | Ile | Ala | Val | Ser | Ser | Ala | His | Arg |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ala | Ala | Ser | Leu | Glu | Ala | Val | Ser | Tyr | Ala | Ile | Asp | Ser | Leu | Lys | Ala |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Lys | Val | Pro | Ile | Trp | Lys | Lys | Glu | Ile | Tyr | Glu | Glu | Ser | Ser | Thr | Trp |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Lys | Gly | Asn | Lys | Glu | Cys | Phe | Trp | Ala | Ser | Asn | Ser |     |     |     |     |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     |     |     |     |

&lt;210&gt; 4617

&lt;211&gt; 2266

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4617

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&lt;210&gt; 4618

&lt;211&gt; 197

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4618

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Phe | Leu | Asp | Ser | Lys | Glu | Glu | Gly | Thr | Ser | Gln | Ala | Pro | Asn | Lys |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Asp | Pro | Thr | Ala | Ala | Ala | Ala | Ala | Leu | Asn | Gly | Gly | His | Cys | Leu | Ala |

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&lt;400&gt; 4620

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 20           25           30
Leu Gln Ala Arg Pro Asn Pro Arg Phe Pro Gly Arg Cys Thr Pro Gly
 35           40           45
Trp Glu Lys Leu Thr Asn Glu Ser Ser Trp Gln Pro Pro Gln Ala Pro
 50           55           60
Pro Asp Trp Ala Ser Trp Leu Cys Cys Gln Asp Tyr Asp Pro Leu Pro
 65           70           75           80
Glu Ser Arg Arg Ser Pro Gln Ala Glu Arg Tyr Arg His Leu Cys Pro
 85           90           95
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 100

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&lt;210&gt; 4621

&lt;211&gt; 2588

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4621

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2588

&lt;210&gt; 4622

&lt;211&gt; 403

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4622

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          20           25           30
Ile Gly Lys Lys Gly Glu Thr Val Lys Arg Ile Arg Glu Gln Ser Ser
      35           40           45
Ala Arg Ile Thr Ile Ser Glu Gly Ser Cys Pro Glu Arg Ile Thr Thr
 50           55           60
Ile Thr Gly Ser Thr Ala Ala Val Phe His Ala Val Ser Met Ile Ala
65           70           75           80
Phe Lys Leu Asp Glu Asp Leu Cys Ala Ala Pro Ala Asn Gly Gly Asn
          85           90           95
Val Ser Arg Pro Pro Val Thr Leu Arg Leu Val Ile Pro Ala Ser Gln
      100           105           110
Cys Gly Ser Leu Ile Gly Lys Ala Gly Thr Lys Ile Lys Glu Ile Arg
      115           120           125
Glu Thr Thr Gly Ala Gln Val Gln Val Ala Gly Asp Leu Leu Pro Asn
      130           135           140
Ser Thr Glu Arg Ala Val Thr Val Ser Gly Val Pro Asp Ala Ile Ile
145           150           155           160
Leu Cys Val Arg Gln Ile Cys Ala Val Ile Leu Glu Ser Pro Pro Lys
      165           170           175
Gly Ala Thr Ile Pro Tyr His Pro Ser Leu Ser Leu Gly Thr Val Leu
      180           185           190
Leu Ser Ala Asn Gln Gly Phe Ser Val Gln Gly Gln Tyr Gly Ala Val
      195           200           205
Thr Pro Ala Glu Val Thr Lys Leu Gln Gln Leu Ser Ser His Ala Val
      210           215           220
Pro Phe Ala Thr Pro Ser Val Val Pro Gly Leu Asp Pro Gly Thr Gln
225           230           235           240
Thr Ser Ser Gln Glu Phe Leu Val Pro Asn Asp Leu Ile Gly Cys Val
      245           250           255
Ile Gly Arg Gln Gly Ser Lys Ile Ser Glu Ile Arg Gln Met Ser Gly
      260           265           270
Ala His Ile Lys Ile Gly Asn Gln Ala Glu Gly Ala Gly Glu Arg His
      275           280           285
Val Thr Ile Thr Gly Ser Pro Val Ser Ile Ala Leu Ala Gln Tyr Leu
      290           295           300
Ile Thr Ala Cys Leu Glu Thr Ala Lys Ser Thr Ser Gly Gly Thr Pro
305           310           315           320
Gly Ser Ala Pro Ala Asp Leu Pro Thr Pro Phe Ser Pro Pro Leu Thr
      325           330           335
Ala Leu Pro Thr Ala Pro Pro Gly Leu Glu Gly Thr Pro Tyr Ala Ile
      340           345           350
Ser Leu Ser Asn Phe Ile Gly Leu Lys Pro Val Pro Phe Leu Ala Leu

```

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| 355 |     |     |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |  |  |
| Pro | Pro | Ala | Ser | Pro | Gly | Pro | Pro | Gly | Leu | Ala | Ala | Tyr | Thr | Ala |     |  |  |
| 370 |     |     |     |     |     | 375 |     |     |     |     |     | 380 |     |     |     |  |  |
| Lys | Met | Ala | Ala | Ala | Asn | Gly | Ser | Lys | Lys | Ala | Glu | Arg | Gln | Lys | Phe |  |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |  |
| Ser | Pro | Tyr |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |

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 <212> DNA  
 <213> Homo sapiens

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&lt;210&gt; 4624

&lt;211&gt; 189

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4624

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Ser | Lys | Lys | Lys | Val | Glu | Gln | Pro | Val | Ile | Glu | Glu | Pro | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Lys | Arg | Lys | Lys | Lys | Lys | Lys | Arg | Lys | Glu | Ser | Gly | Val | Ala | Gly |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asp | Pro | Trp | Lys | Glu | Glu | Thr | Asp | Thr | Asp | Leu | Glu | Val | Val | Leu | Glu |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Lys | Lys | Gly | Asn | Met | Asp | Glu | Ala | His | Ile | Asp | Gln | Val | Arg | Arg | Lys |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ala | Leu | Gln | Glu | Glu | Ile | Asp | Arg | Glu | Ser | Gly | Lys | Thr | Glu | Ala | Ser |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Glu | Thr | Arg | Lys | Trp | Thr | Gly | Thr | Gln | Phe | Gly | Gln | Trp | Asp | Thr | Ala |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Gly | Phe | Glu | Asn | Glu | Asp | Gln | Lys | Leu | Lys | Phe | Leu | Arg | Leu | Met | Gly |

```

      100      105      110
Gly Phe Lys Asn Leu Ser Pro Ser Phe Ser Arg Pro Ala Ser Thr Ile
      115      120      125
Ala Arg Pro Asn Met Ala Leu Gly Lys Lys Ala Ala Asp Ser Leu Gln
      130      135      140
Gln Asn Leu Gln Arg Asp Tyr Asp Arg Ala Met Ser Trp Lys Tyr Ser
145      150      155      160
Arg Gly Ala Gly Leu Gly Phe Ser Thr Ala Pro Asn Lys Ile Phe Tyr
      165      170      175
Ile Asp Arg Asn Ala Ser Lys Ser Val Lys Leu Glu Asp
      180      185

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<210> 4625  
 <211> 334  
 <212> DNA  
 <213> Homo sapiens

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<400> 4625
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120
ctggaggagc agcggcagtc agaacgtctc cagaggcagc tgcagcagga gcatgcctac
180
ctaaagtccc tgcagcagca gcaacagcag cagcagcttc agaaacagca gcagcagcag
240
ctcctgcctg gggacaggaa gcccctgtac cattatgggc ggggcatgaa tcccgctgac
300
aaaccagcct gggcccgaga gggagaagag agac
334

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<210> 4626  
 <211> 111  
 <212> PRT  
 <213> Homo sapiens

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<400> 4626
Arg Glu Gln Arg Lys Leu Gln Glu Lys Glu Gln Gln Arg Arg Leu Glu
1      5      10      15
Asp Met Gln Ala Leu Arg Arg Glu Glu Glu Arg Arg Gln Ala Glu Arg
20      25      30
Glu Gln Glu Tyr Lys Arg Lys Gln Leu Glu Glu Gln Arg Gln Ser Glu
35      40      45
Arg Leu Gln Arg Gln Leu Gln Glu His Ala Tyr Leu Lys Ser Leu
50      55      60
Gln Gln Gln Gln Gln Gln Gln Gln Leu Gln Lys Gln Gln Gln Gln Gln
65      70      75      80
Leu Leu Pro Gly Asp Arg Lys Pro Leu Tyr His Tyr Gly Arg Gly Met
85      90      95
Asn Pro Ala Asp Lys Pro Ala Trp Ala Arg Glu Gly Glu Glu Arg
100      105      110

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<210> 4627  
 <211> 1736

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4627

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60  
cgctctgtcc cgcccgggca gctctgcgag gcagcggctg gagaggggaac catggggact  
120  
gtgcacgccc ggagtttga gctcttcca tcaagtggac ctgattttgg aggattagga  
180  
gaagaagctg aatttgttga agttgagcct gaagctaaac aggaaattct tgaaaacaaa  
240  
gatgtggttg ttcaacatgt tcattttgat ggacttggaa ggactaaaga tgatatcatc  
300  
atttgtgaaa ttggagatgt tttcaaggcc aaaaacctaa ttgaggtaat gcggaaatct  
360  
catgaagccc gtgaaaaatt gctccgtctt ggaattttta gacaagtga tgttttgatt  
420  
gacacatgtc aaggtgatgg cgcacttcca aatgggtag acgttacctt tgaagtaact  
480  
gaattgagga gattaacggg cagttataac accatgggtg ggaacaatga aggcagtatg  
540  
gtacttggcc tcaagcttcc taatcttctt ggtcgtgcag aaaaggtgac ctttcagttt  
600  
tcctatggaa caaaagaaac ttcgtatggc ctgtccttct tcaaaccacg gcccggaac  
660  
ttcgaaagaa atttctctgt aaacttatat aaagttactg gacagttccc ttggagctca  
720  
ctgcgggaga cggacagagg aatgtcagct gagtacagtt ttcccatatg gaagaccagc  
780  
cacactgtca agtgggaagg cgtatggcga gaactgggct gcctctcaag gacggcgtca  
840  
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900  
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960  
gaactggcag gctacactgg cggggatgtg agcttcatca aagaagattt tgaacttcag  
1020  
ttgaacaagc aactcatatt tgattcagtt ttttcagcgt ctttctgggg cggaatgttg  
1080  
gtaccattg gtgataagcc gtcaagcatt gctgataggt ttaccttgg gggaccaca  
1140  
agcgtccgcg gattcagcat gcacagcatc gggccacaga gcgaaggaga ctacctaggt  
1200  
ggagaagcgt actgggcccgg cggcctgcac ctctacaccc cattacctt ccggccaggc  
1260  
cagggtggct ttggagaact tttccgaaca cacttcttcc tcaacgcagg aaacctctgc  
1320  
aacctcaact atggggaggg ccccaaagct catattcgta agctggctga gtgcatccgc  
1380  
tggtcgtacg gggccgggat tgctctcagg cttggcaaca tcgctcggtt ggaacttaat  
1440  
tactgcgtcc ccatgggagt acagacaggc gacaggatat gtgatggcgt ccagtttga  
1500

gctgggataa ggttcctgta gccgacaccc ctacaggaga agctctggga ctggggcagc  
 1560  
 agcaaggcgc ccatgccaca caccgtctct cgaggaaacg cggttcagcg attctttgac  
 1620  
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 1680  
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 1736

<210> 4628  
 <211> 469  
 <212> PRT  
 <213> Homo sapiens

<400> 4628  
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 Pro Asp Phe Gly Gly Leu Gly Glu Glu Ala Glu Phe Val Glu Val Glu  
 20 25 30  
 Pro Glu Ala Lys Gln Glu Ile Leu Glu Asn Lys Asp Val Val Val Gln  
 35 40 45  
 His Val His Phe Asp Gly Leu Gly Arg Thr Lys Asp Asp Ile Ile Ile  
 50 55 60  
 Cys Glu Ile Gly Asp Val Phe Lys Ala Lys Asn Leu Ile Glu Val Met  
 65 70 75 80  
 Arg Lys Ser His Glu Ala Arg Glu Lys Leu Leu Arg Leu Gly Ile Phe  
 85 90 95  
 Arg Gln Val Asp Val Leu Ile Asp Thr Cys Gln Gly Asp Gly Ala Leu  
 100 105 110  
 Pro Asn Gly Leu Asp Val Thr Phe Glu Val Thr Glu Leu Arg Arg Leu  
 115 120 125  
 Thr Gly Ser Tyr Asn Thr Met Val Gly Asn Asn Glu Gly Ser Met Val  
 130 135 140  
 Leu Gly Leu Lys Leu Pro Asn Leu Leu Gly Arg Ala Glu Lys Val Thr  
 145 150 155 160  
 Phe Gln Phe Ser Tyr Gly Thr Lys Glu Thr Ser Tyr Gly Leu Ser Phe  
 165 170 175  
 Phe Lys Pro Arg Pro Gly Asn Phe Glu Arg Asn Phe Ser Val Asn Leu  
 180 185 190  
 Tyr Lys Val Thr Gly Gln Phe Pro Trp Ser Ser Leu Arg Glu Thr Asp  
 195 200 205  
 Arg Gly Met Ser Ala Glu Tyr Ser Phe Pro Ile Trp Lys Thr Ser His  
 210 215 220  
 Thr Val Lys Trp Glu Gly Val Trp Arg Glu Leu Gly Cys Leu Ser Arg  
 225 230 235 240  
 Thr Ala Ser Phe Ala Val Arg Lys Glu Ser Gly His Ser Leu Lys Ser  
 245 250 255  
 Ser Leu Ser His Ala Met Val Ile Asp Ser Arg Asn Ser Ser Ile Leu  
 260 265 270  
 Pro Arg Arg Gly Ala Leu Leu Lys Val Asn Gln Glu Leu Ala Gly Tyr  
 275 280 285  
 Thr Gly Gly Asp Val Ser Phe Ile Lys Glu Asp Phe Glu Leu Gln Leu  
 290 295 300  
 Asn Lys Gln Leu Ile Phe Asp Ser Val Phe Ser Ala Ser Phe Trp Gly



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305          310          315          320
Gly Met Leu Val Pro Ile Gly Asp Lys Pro Ser Ser Ile Ala Asp Arg
          325          330          335
Phe Tyr Leu Gly Gly Pro Thr Ser Val Arg Gly Phe Ser Met His Ser
          340          345          350
Ile Gly Pro Gln Ser Glu Gly Asp Tyr Leu Gly Gly Glu Ala Tyr Trp
          355          360          365
Ala Gly Gly Leu His Leu Tyr Thr Pro Leu Pro Phe Arg Pro Gly Gln
          370          375          380
Gly Gly Phe Gly Glu Leu Phe Arg Thr His Phe Phe Leu Asn Ala Gly
385          390          395          400
Asn Leu Cys Asn Leu Asn Tyr Gly Glu Gly Pro Lys Ala His Ile Arg
          405          410          415
Lys Leu Ala Glu Cys Ile Arg Trp Ser Tyr Gly Ala Gly Ile Val Leu
          420          425          430
Arg Leu Gly Asn Ile Ala Arg Leu Glu Leu Asn Tyr Cys Val Pro Met
          435          440          445
Gly Val Gln Thr Gly Asp Arg Ile Cys Asp Gly Val Gln Phe Gly Ala
          450          455          460
Gly Ile Arg Phe Leu
465

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&lt;210&gt; 4629

&lt;211&gt; 706

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4629

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acgcgtgggc cggagaccca gcgtgggggg cgcagagggga gtccccctga gctgggcgcg
60
tcctccccgc gcggtccgct ccttaagtcc cctgtgcgtc acctccttgc gtcggtcgcc
120
agcacccgca ttgcttcggc cctagtgcag gggcagcacg tgcgcactga accctggagt
180
cctgatctct agcctagctc aaagcctcca ccaggatcgg gtggcagctt ccatttgagg
240
ccattttctag gccagcggcc cagctgccag cttcacgtct cctgagttgg gggatctctg
300
gtccccctgtc ctgctttgtg gccaaaggag ccaggatcc tggccagagg atgggcccgc
360
acccactcc tggttctggg tgcagttcgg cagatgggaa tccaggagct cagcttgga
420
accctcccca cctccggctc caagcccggg tccaagagga ccaggggctg agcagaggct
480
tgtccccaat atcctccct gccctcctc tttcctattt gagggaagac tgacaccctc
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706

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&lt;210&gt; 4630

<211> 140  
 <212> PRT  
 <213> Homo sapiens

<400> 4630  
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 1 5 10 15  
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 20 25 30  
 Arg Asp Gln Gly Ala Leu Ser Leu Ser Arg Met Gly Arg Asp Ala Ser  
 35 40 45  
 Ser Trp Ala Leu Arg Val Ser Val Phe Pro Gln Ile Gly Lys Met Arg  
 50 55 60  
 Gly Arg Gly Gly Tyr Trp Gly Gln Ala Ser Ala Gln Pro Trp Val Leu  
 65 70 75 80  
 Leu Glu Pro Gly Leu Glu Pro Glu Val Gly Arg Val Ser Lys Leu Ser  
 85 90 95  
 Ser Trp Ile Pro Ile Cys Arg Thr Ala Pro Arg Thr Arg Ser Gly Val  
 100 105 110  
 Arg Ala His Pro Leu Ala Arg Ile Leu Gly Ser Leu Gly His Lys Ala  
 115 120 125  
 Gly Gln Gly Thr Arg Asp Pro Pro Thr Gln Glu Thr  
 130 135 140

<210> 4631  
 <211> 2756  
 <212> DNA  
 <213> Homo sapiens

<400> 4631  
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 120  
 gagtcggccg gctgggactt gcagatcgcg ctagcgagct tttatgagga cggaggggat  
 180  
 gaagacattg tgaccatttc gcaggcaacc cccagttcag tgtccagagg cacagccccc  
 240  
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 300  
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 360  
 attgttgggc ctcccaggaa gaaaagtccc aacgagctgg tggatgatct ctttaaaggt  
 420  
 gccaaagagc atggagctgt agctgtggag cgagtgaaca agagccctgg agagaccagt  
 480  
 aaaccgagac catttgcagg aggtggctac cgccttgggg cagcaccaga ggaagagtct  
 540  
 gcctatgtgg caggagaaaa gaggcagcat tccagccaag atgttcatgt agtattgaaa  
 600  
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 660  
 aatgccccagt ttctggagtc tatccgcaga ggggaggtgc cagcagagct tcggaggcta  
 720

gctcacgggtg gacagggtgaa cttggatatg gaggaccatc gggacgagga ctttgtgaag  
780  
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840  
caggtgttga gtaccagctc tccagcccaa caggcagaaa atgaagccaa agccagctct  
900  
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960  
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1320  
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1380  
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1980  
catcctaagt gagttcagaa tcagggtatc ttgcctata agataaacag tcaaaatgcc  
2040  
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2100  
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2160  
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2220  
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2280  
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2340

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 2400  
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 2460  
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 2520  
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 2580  
 gcttttgatc ccaaagttcc cacaccggca gtggcctgct ggggcaatgg catctgtcac  
 2640  
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 2700  
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 2756

<210> 4632

<211> 372

<212> PRT

<213> Homo sapiens

<400> 4632

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ala | Glu | Arg | Gln | Glu | Ala | Leu | Arg | Glu | Phe | Val | Ala | Val | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Ala | Glu | Glu | Asp | Arg | Ala | Arg | Phe | Phe | Leu | Glu | Ser | Ala | Gly | Trp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asp | Leu | Gln | Ile | Ala | Leu | Ala | Ser | Phe | Tyr | Glu | Asp | Gly | Gly | Asp | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp | Ile | Val | Thr | Ile | Ser | Gln | Ala | Thr | Pro | Ser | Ser | Val | Ser | Arg | Gly |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Thr | Ala | Pro | Ser | Asp | Asn | Arg | Val | Thr | Ser | Phe | Arg | Asp | Leu | Ile | His |
|     | 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Asp | Gln | Asp | Glu | Asp | Glu | Glu | Glu | Glu | Glu | Gly | Gln | Arg | Ser | Arg | Phe |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Tyr | Ala | Gly | Gly | Ser | Glu | Arg | Ser | Gly | Gln | Gln | Ile | Val | Gly | Pro | Pro |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Arg | Lys | Lys | Ser | Pro | Asn | Glu | Leu | Val | Asp | Asp | Leu | Phe | Lys | Gly | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Lys | Glu | His | Gly | Ala | Val | Ala | Val | Glu | Arg | Val | Thr | Lys | Ser | Pro | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Glu | Thr | Ser | Lys | Pro | Arg | Pro | Phe | Ala | Gly | Gly | Gly | Tyr | Arg | Leu | Gly |
|     | 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Ala | Ala | Pro | Glu | Glu | Glu | Ser | Ala | Tyr | Val | Ala | Gly | Glu | Lys | Arg | Gln |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| His | Ser | Ser | Gln | Asp | Val | His | Val | Val | Leu | Lys | Leu | Trp | Lys | Ser | Gly |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Phe | Ser | Leu | Asp | Asn | Gly | Glu | Leu | Arg | Ser | Tyr | Gln | Asp | Pro | Ser | Asn |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ala | Gln | Phe | Leu | Glu | Ser | Ile | Arg | Arg | Gly | Glu | Val | Pro | Ala | Glu | Leu |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Arg | Arg | Leu | Ala | His | Gly | Gly | Gln | Val | Asn | Leu | Asp | Met | Glu | Asp | His |
|     | 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Arg | Asp | Glu | Asp | Phe | Val | Lys | Pro | Lys | Gly | Ala | Phe | Lys | Ala | Phe | Thr |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Gly | Glu | Gly | Gln | Lys | Leu | Gly | Ser | Thr | Ala | Pro | Gln | Val | Leu | Ser | Thr |

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<210> 4633
<211> 873
<212> DNA
<213> Homo sapiens
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120
ctgcctccag acgctggcac tgaggggggtc caccgtcagg cactcagtca ggctgctcag
180
gagctctttc ttcattctcag ggggacagct aggggtggct ctggacagga aagaagggaa
240
gtaggatatgc agggtggaat ccggctttgc tccaaatgcc agcactttca gtcgggggta
300
gagctgacac agctgctcct gcaggctggg tgtcaggagg ttgttcggca tataggcaaa
360
gtccagaagt ggaagaagt ccttggggcc aatcatgccg aagcccttgg taagggttggg
420
atgcatcagg agcagccgat ccaggatatgt gatggcaaaag ggagacagag acttgatgcc
480
cagcacaggc agcatgatcc ccagccacac tttcagtccc tcggtgaggt tggcaaaacc
540
tgcttgaccc agggcccaca tgatgggtgag acactttgct ggtcggctct ggtgggacct
600
cagcagttcc aggaacttgc ctaggtttgc cgtggcaatc ttgggcttgt cttgcaggat
660
ggcctggata cagatgcggt aaccatgtag tgaactccct ggtgtcttat ccagctcttg
720
caacatgggtg aacagacagt gggccctggg tcaagcaggt ttgccaacc tcactgaggg
780
actgaaagtg tggctgggga tcatgctgcc tgtgctgggc atcaagtctc tgtctccctt
840
tgccatcacc cccttcacgc ggtcggagag agc
873

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<210> 4634

<211> 242  
 <212> PRT  
 <213> Homo sapiens

<400> 4634

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Met Leu Gln Glu Leu Asp Lys Thr Pro Gly Glu Ser Leu His Gly Tyr
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Arg Ile Cys Ile Gln Ala Ile Leu Gln Asp Lys Pro Lys Ile Ala Thr
 20           25           30
Ala Asn Leu Gly Lys Phe Leu Glu Leu Arg Ser His Gln Ser Arg
 35           40           45
Pro Ala Lys Cys Leu Thr Ile Met Trp Ala Leu Gly Gln Ala Gly Phe
 50           55           60
Ala Asn Leu Thr Glu Gly Leu Lys Val Trp Leu Gly Ile Met Leu Pro
 65           70           75           80
Val Leu Gly Ile Lys Ser Leu Ser Pro Phe Ala Ile Thr Tyr Leu Asp
 85           90           95
Arg Leu Leu Leu Met His Pro Asn Leu Thr Lys Gly Phe Gly Met Ile
100          105          110
Gly Pro Lys Asp Phe Phe Pro Leu Leu Asp Phe Ala Tyr Met Pro Asn
115          120          125
Asn Ser Leu Thr Pro Ser Leu Gln Glu Gln Leu Cys Gln Leu Tyr Pro
130          135          140
Arg Leu Lys Val Leu Ala Phe Gly Ala Lys Pro Asp Ser Thr Leu His
145          150          155          160
Thr Tyr Phe Pro Ser Phe Leu Ser Arg Ala Thr Pro Ser Cys Pro Pro
165          170          175
Glu Met Lys Lys Glu Leu Leu Ser Ser Leu Thr Glu Cys Leu Thr Val
180          185          190
Asp Pro Leu Ser Ala Ser Val Trp Arg Gln Leu Tyr Pro Lys His Leu
195          200          205
Ser Gln Ser Ser Leu Leu Leu Glu His Leu Leu Ser Ser Trp Glu Gln
210          215          220
Ile Pro Lys Lys Val Gln Lys Ser Leu Gln Glu Thr Ile Gln Ser Leu
225          230          235          240
Lys Leu

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<210> 4635  
 <211> 384  
 <212> DNA  
 <213> Homo sapiens

<400> 4635

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300

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384

<210> 4636  
<211> 108  
<212> PRT  
<213> Homo sapiens

<400> 4636  
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Lys Glu Val Lys Trp Gly Pro Arg Arg Lys Ala Gly Gly Val Trp Ala  
35 40 45  
Glu Pro Ala Ser Gly Gly Leu Pro Pro Pro Glu Asp Glu Phe Cys Ser  
50 55 60  
Pro Gly Val Cys Thr Leu Thr Leu Ala His Ser Leu Thr His Lys Thr  
65 70 75 80  
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<212> DNA  
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&lt;210&gt; 4638



<211> 446  
 <212> PRT  
 <213> Homo sapiens

<400> 4638

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          20          25          30
Thr Lys Ala Gly Tyr Lys Leu Phe Ser Leu Ser Ser Val Glu Gln Leu
          35          40          45
Asp Gln Val His Gly Ser Asn Glu Ile Pro Asp Val Tyr Ile Val Glu
          50          55          60
Arg Leu Phe Ser Ser Ser Leu Val Val Val Val Ser His Thr Lys Pro
65          70          75          80
Arg Gln Met Asn Val Tyr His Phe Lys Lys Gly Thr Glu Ile Cys Asn
          85          90          95
Tyr Ser Tyr Ser Ser Asn Ile Leu Ser Ile Arg Leu Asn Arg Gln Arg
          100          105          110
Leu Leu Val Cys Leu Glu Glu Ser Ile Tyr Ile His Asn Ile Lys Asp
          115          120          125
Met Lys Leu Leu Lys Thr Leu Leu Asp Ile Pro Ala Asn Pro Thr Gly
          130          135          140
Leu Cys Ala Leu Ser Ile Asn His Ser Asn Ser Tyr Leu Ala Tyr Pro
145          150          155          160
Gly Ser Leu Thr Ser Gly Glu Ile Val Leu Tyr Asp Gly Asn Ser Leu
          165          170          175
Lys Thr Val Cys Thr Ile Ala Ala His Glu Gly Thr Leu Ala Ala Ile
          180          185          190
Thr Phe Asn Ala Ser Gly Ser Lys Leu Ala Ser Ala Ser Glu Lys Gly
          195          200          205
Thr Val Ile Arg Val Phe Ser Val Pro Asp Gly Gln Lys Leu Tyr Glu
          210          215          220
Phe Arg Arg Gly Met Lys Arg Tyr Val Thr Ile Ser Ser Leu Val Phe
225          230          235          240
Ser Met Asp Ser Gln Phe Leu Cys Ala Ser Ser Asn Thr Glu Thr Val
          245          250          255
His Ile Phe Lys Leu Glu Gln Val Thr Asn Ser Arg Pro Glu Glu Pro
          260          265          270
Ser Thr Trp Ser Gly Tyr Met Gly Lys Met Phe Met Ala Ala Thr Asn
275          280          285
Tyr Leu Pro Thr Gln Val Ser Asp Met Met His Gln Asp Arg Ala Phe
290          295          300
Ala Thr Ala Arg Leu Asn Phe Ser Gly Gln Arg Asn Ile Cys Thr Leu
305          310          315          320
Ser Thr Ile Gln Lys Leu Pro Arg Leu Leu Val Ala Ser Ser Ser Gly
          325          330          335
His Leu Tyr Met Tyr Asn Leu Asp Pro Gln Asp Gly Gly Glu Cys Val
          340          345          350
Leu Ile Lys Thr His Ser Leu Leu Gly Ser Gly Thr Thr Glu Glu Asn
          355          360          365
Lys Glu Asn Asp Leu Arg Pro Ser Leu Pro Gln Ser Tyr Ala Ala Thr
          370          375          380
Val Ala Arg Pro Ser Ala Ser Ser Ala Ser Thr Val Pro Gly Tyr Ser

```

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 385 |     | 390 |     | 395 |     | 400 |     |     |     |     |     |     |     |     |     |
| Glu | Asp | Gly | Gly | Ala | Leu | Arg | Gly | Glu | Val | Ile | Pro | Glu | His | Glu | Phe |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Ala | Thr | Gly | Pro | Val | Cys | Leu | Asp | Asp | Glu | Asn | Glu | Phe | Pro | Pro | Ile |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Ile | Leu | Cys | Arg | Gly | Asn | Gln | Lys | Gly | Lys | Thr | Lys | Gln | Ser |     |     |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |

<210> 4639  
 <211> 1007  
 <212> DNA  
 <213> Homo sapiens

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 300  
 aattctcttt taaaaaatta acagtaaaaa taggagttac ttactatcta gatgaacaca  
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 420  
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 780  
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 840  
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<210> 4640  
 <211> 71  
 <212> PRT  
 <213> Homo sapiens

&lt;400&gt; 4640

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      20           25           30
Leu Arg Arg Ser Phe Ala Leu Val Ala Gln Ala Arg Val Gln Trp Arg
      35           40           45
Asp Leu Ser Ser Leu Gln Pro Pro Pro Arg Leu Lys Arg Phe Ser
      50           55           60
His Leu Ser Leu Pro Ser Ser
65           70

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&lt;210&gt; 4641

&lt;211&gt; 1873

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4641

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 1740  
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 1860  
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 1873

&lt;210&gt; 4642

&lt;211&gt; 306

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4642

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Cys | Asp | Gly | Gly | Thr | Ile | Pro | Lys | Arg | His | Glu | Leu | Val | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Pro | Lys | Lys | Val | Glu | Lys | Val | Asp | Lys | Asp | Ala | Glu | Leu | Val | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gln | Trp | Asn | Tyr | Cys | Thr | Leu | Ser | Gln | Glu | Ile | Leu | Arg | Arg | Pro | Ile |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Ala | Cys | Glu | Leu | Gly | Arg | Leu | Tyr | Asn | Lys | Asp | Ala | Val | Ile | Glu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Phe | Leu | Leu | Asp | Lys | Ser | Ala | Glu | Lys | Ala | Leu | Gly | Lys | Ala | Ala | Ser |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| His | Ile | Lys | Ser | Ile | Lys | Asn | Val | Thr | Glu | Leu | Lys | Leu | Ser | Asp | Asn |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Pro | Ala | Trp | Glu | Gly | Asp | Lys | Gly | Asn | Thr | Lys | Gly | Asp | Lys | His | Asp |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Asp | Leu | Gln | Arg | Ala | Arg | Phe | Ile | Cys | Pro | Val | Val | Gly | Leu | Glu | Met |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Asn | Gly | Arg | His | Arg | Phe | Cys | Phe | Leu | Arg | Cys | Cys | Gly | Cys | Val | Phe |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Glu | Arg | Ala | Leu | Lys | Glu | Ile | Lys | Ala | Glu | Val | Cys | His | Thr | Cys |

145                      150                      155                      160  
 Gly Ala Ala Phe Gln Glu Asp Asp Val Ile Met Leu Asn Gly Thr Lys  
                                  165                      170                      175  
 Glu Asp Val Asp Val Leu Lys Thr Arg Met Glu Glu Arg Arg Leu Arg  
                                  180                      185                      190  
 Ala Lys Leu Glu Lys Lys Thr Lys Lys Pro Lys Ala Ala Glu Ser Val  
                                  195                      200                      205  
 Ser Lys Pro Asp Val Ser Glu Glu Ala Pro Gly Pro Ser Lys Val Lys  
                                  210                      215                      220  
 Thr Gly Lys Pro Glu Glu Ala Ser Leu Asp Ser Arg Glu Lys Lys Thr  
 225                      230                      235                      240  
 Asn Leu Ala Pro Lys Ser Thr Ala Met Asn Glu Ser Ser Ser Gly Lys  
                                  245                      250                      255  
 Ala Gly Lys Pro Pro Cys Gly Ala Thr Lys Arg Ser Ile Ala Asp Ser  
                                  260                      265                      270  
 Glu Glu Ser Glu Ala Tyr Lys Ser Leu Phe Thr Thr His Ser Ser Ala  
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 Cys Phe  
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&lt;210&gt; 4643

&lt;211&gt; 1125

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4643

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 1125

<210> 4644

<211> 270

<212> PRT

<213> Homo sapiens

<400> 4644

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Thr | Gly | Thr | Arg | Tyr | Ala | Gly | Lys | Val | Val | Val | Val | Thr | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Gly | Arg | Gly | Ile | Gly | Ala | Gly | Ile | Val | Arg | Ala | Phe | Val | Asp | Ser |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |
| Gly | Ala | Arg | Val | Val | Ile | Cys | Asp | Lys | Asp | Glu | Ser | Gly | Gly | Arg | Ala |
|     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Leu | Glu | Gln | Glu | Leu | Pro | Gly | Ala | Val | Phe | Ile | Leu | Cys | Asp | Val | Thr |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gln | Glu | Asp | Asp | Met | Lys | Thr | Leu | Val | Ser | Glu | Thr | Ile | Arg | Arg | Phe |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gly | Arg | Leu | Asp | Cys | Val | Val | Asn | Asn | Ala | Gly | His | His | Pro | Pro | Pro |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gln | Arg | Pro | Glu | Glu | Thr | Ser | Ala | Gln | Gly | Phe | Arg | Gln | Leu | Leu | Glu |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Asn | Leu | Leu | Gly | Thr | Tyr | Thr | Leu | Thr | Lys | Leu | Ala | Leu | Pro | Tyr |
|     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Leu | Arg | Lys | Ser | Gln | Gly | Asn | Val | Ile | Asn | Ile | Ser | Ser | Leu | Val | Gly |
|     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |
| Ala | Ile | Gly | Gln | Ala | Gln | Ala | Val | Pro | Tyr | Val | Ala | Thr | Lys | Gly | Ala |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |
| Val | Thr | Ala | Met | Thr | Lys | Ala | Leu | Ala | Leu | Asp | Glu | Ser | Pro | Tyr | Gly |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Val | Arg | Val | Asn | Cys | Ile | Ser | Pro | Gly | Asn | Ile | Trp | Thr | Pro | Leu | Trp |
|     | 180 |     |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Glu | Glu | Leu | Ala | Ala | Leu | Met | Pro | Asp | Pro | Arg | Ala | Thr | Ile | Arg | Glu |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Gly | Met | Leu | Ala | Gln | Pro | Leu | Gly | Arg | Met | Gly | Gln | Pro | Ala | Glu | Val |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gly | Ala | Ala | Ala | Val | Phe | Leu | Ala | Ser | Glu | Ala | Asn | Phe | Cys | Thr | Gly |
| 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |     |
| Ile | Glu | Leu | Leu | Val | Thr | Gly | Gly | Ala | Glu | Leu | Gly | Tyr | Gly | Cys | Lys |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Ala | Ser | Arg | Ser | Thr | Pro | Val | Asp | Ala | Pro | Asp | Ile | Pro | Ser |     |     |
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420  
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480  
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 1725

<210> 4646

<211> 358

<212> PRT

<213> Homo sapiens

<400> 4646

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Pro | Gln | Asn | Leu | Ser | Thr | Phe | Cys | Leu | Leu | Leu | Leu | Tyr | Leu | 1   | 5   | 10  | 15  |
| Ile | Gly | Ala | Val | Ile | Ala | Gly | Arg | Asp | Phe | Tyr | Lys | Ile | Leu | Gly | Val | 20  | 25  | 30  |     |
| Pro | Arg | Ser | Ala | Ser | Ile | Lys | Asp | Ile | Lys | Lys | Ala | Tyr | Arg | Lys | Leu | 35  | 40  | 45  |     |
| Ala | Leu | Gln | Leu | His | Pro | Asp | Arg | Asn | Pro | Asp | Asp | Pro | Gln | Ala | Gln | 50  | 55  | 60  |     |
| Glu | Lys | Phe | Gln | Asp | Leu | Gly | Ala | Ala | Tyr | Glu | Val | Leu | Ser | Asp | Ser | 65  | 70  | 75  | 80  |
| Glu | Lys | Arg | Lys | Gln | Tyr | Asp | Thr | Tyr | Gly | Glu | Glu | Gly | Leu | Lys | Asp | 85  | 90  | 95  |     |
| Gly | His | Gln | Ser | Ser | His | Gly | Asp | Ile | Phe | Ser | His | Phe | Phe | Gly | Asp | 100 | 105 | 110 |     |
| Phe | Gly | Phe | Met | Phe | Gly | Gly | Thr | Pro | Arg | Gln | Gln | Asp | Arg | Asn | Ile | 115 | 120 | 125 |     |
| Pro | Arg | Gly | Ser | Asp | Ile | Ile | Val | Asp | Leu | Glu | Val | Thr | Leu | Glu | Glu | 130 | 135 | 140 |     |
| Val | Tyr | Ala | Gly | Asn | Phe | Val | Glu | Val | Val | Arg | Asn | Lys | Pro | Val | Ala | 145 | 150 | 155 | 160 |
| Arg | Gln | Ala | Pro | Gly | Lys | Arg | Lys | Cys | Asn | Cys | Arg | Gln | Glu | Met | Arg | 165 | 170 | 175 |     |
| Thr | Thr | Gln | Leu | Gly | Pro | Gly | Arg | Phe | Gln | Met | Thr | Gln | Glu | Val | Val | 180 | 185 | 190 |     |
| Cys | Asp | Glu | Cys | Pro | Asn | Val | Lys | Leu | Val | Asn | Glu | Glu | Arg | Thr | Leu | 195 | 200 | 205 |     |
| Glu | Val | Glu | Ile | Glu | Pro | Gly | Val | Arg | Asp | Gly | Met | Glu | Tyr | Pro | Phe | 210 | 215 | 220 |     |
| Ile | Gly | Glu | Gly | Glu | Pro | His | Val | Asp | Gly | Glu | Pro | Gly | Asp | Leu | Arg | 225 | 230 | 235 | 240 |
| Phe | Arg | Ile | Lys | Val | Val | Lys | His | Pro | Ile | Phe | Glu | Arg | Arg | Gly | Asp | 245 | 250 | 255 |     |
| Asp | Leu | Tyr | Thr | Asn | Val | Thr | Ile | Ser | Leu | Val | Glu | Ser | Leu | Val | Gly | 260 | 265 | 270 |     |
| Phe | Glu | Met | Asp | Ile | Thr | His | Leu | Asp | Gly | His | Lys | Val | His | Ile | Ser | 275 | 280 | 285 |     |
| Arg | Asp | Lys | Ile | Thr | Arg | Pro | Gly | Ala | Lys | Leu | Trp | Lys | Lys | Gly | Glu |     |     |     |     |



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      290                      295                      300
Gly Leu Pro Asn Phe Asp Asn Asn Asn Ile Lys Gly Ser Leu Ile Ile
305                      310                      315                      320
Thr Phe Asp Val Asp Phe Pro Lys Glu Gln Leu Thr Glu Glu Ala Arg
      325                      330                      335
Glu Gly Ile Lys Gln Leu Leu Lys Gln Gly Ser Val Gln Lys Val Tyr
      340                      345                      350
Asn Gly Leu Gln Gly Tyr
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300
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420
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480
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540
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600
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660
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791

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<210> 4648  
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 <212> PRT  
 <213> Homo sapiens

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<400> 4648
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Leu Ser Ser Asp Gly Thr Tyr Phe Tyr Trp Ile Trp Ser Pro Ala Ser

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 20  |     | 25  |     | 30  |     |     |     |     |     |     |     |     |     |     |
| Leu | Asn | Glu | Lys | Thr | Pro | Lys | Gly | His | Ser | Val | Phe | Met | Asp | Ile | Phe |
|     | 35  |     | 40  |     | 45  |     |     |     |     |     |     |     |     |     |     |
| Glu | Leu | Val | Val | Glu | Asn | Gly | Val | Phe | Val | Ala | Asn | Pro | Leu | Gln | Glu |
|     | 50  |     | 55  |     | 60  |     |     |     |     |     |     |     |     |     |     |
| Arg | Thr | Ile | Leu | Met | Arg | Lys | Glu | Gly | Glu | Ser | Ala | Lys | Ser | Ile | Asn |
|     | 65  |     | 70  |     | 75  |     |     |     |     |     |     |     |     | 80  |     |
| Glu | Met | Leu | Leu | Ser | Arg | Leu | Ser | Arg | Tyr | Arg | Ala | Ser | Pro | Ser | Ala |
|     |     |     | 85  |     | 90  |     |     |     |     |     |     |     |     | 95  |     |
| Thr | Leu | Ala | Ala | Leu | Thr | Gly | Ser | Thr | Ile | Ser | Asn | Thr | Leu | Lys | Glu |
|     |     | 100 |     |     | 105 |     |     |     |     |     |     |     | 110 |     |     |
| Asp | Gln | Ala | Ala | Asn | Thr | Ser | Cys | Gly | Leu | Pro | Leu | Lys | Met | Leu | Arg |
|     | 115 |     |     |     | 120 |     |     |     |     |     |     | 125 |     |     |     |
| Lys | Thr | Pro | Ile | Tyr | Thr | Cys | Gly | Thr | Tyr | Leu | Val | Met | Leu | Val | Pro |
|     | 130 |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |     |
| Pro | Pro | Gly | Gly | Ser | Gly | Ser | Ser | Ala | Thr | Arg | Ser | Leu | Phe | Gly | Gly |
|     | 145 |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |
| Thr | Ser | Gly | Leu | Ser | Ser | Leu | Lys | Ile | Leu | Ala | Ser | Ser | Leu | Val | Tyr |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Asn | Ile | Ser | Asp | Gly | Gln | Phe | Thr | Ser | Arg | Ala | Asp |     |     |     |     |
|     | 180 |     |     |     |     |     |     | 185 |     |     |     |     |     |     |     |

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 <212> DNA  
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 180  
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 3276

&lt;210&gt; 4650

&lt;211&gt; 965

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4650

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Glu | Tyr | Met | Arg | Leu | Gly | Glu | Asn | Ile | Ile | Glu | Tyr | Ser | Arg | Asp |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Phe | Lys | Leu | Tyr | Ile | Thr | Thr | Arg | Leu | Arg | Asn | Pro | His | Tyr | Leu | Pro |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Val | Ala | Val | Lys | Val | Cys | Leu | Leu | Asn | Phe | Met | Ile | Thr | Pro | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gly | Leu | Gln | Asp | Gln | Leu | Leu | Gly | Ile | Val | Ala | Ala | Lys | Glu | Lys | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Glu | Leu | Glu | Glu | Lys | Lys | Asn | Gln | Leu | Ile | Val | Glu | Ser | Ala | Lys | Asn |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Lys | Lys | His | Leu | Lys | Glu | Ile | Glu | Asp | Lys | Ile | Leu | Glu | Val | Leu | Ser |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Met | Ser | Lys | Gly | Asn | Ile | Leu | Glu | Asp | Glu | Thr | Ala | Ile | Lys | Val | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Ser | Ser | Lys | Val | Leu | Ser | Glu | Glu | Ile | Ser | Glu | Lys | Gln | Lys | Val |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ala | Ser | Met | Thr | Glu | Thr | Gln | Ile | Asp | Glu | Thr | Arg | Met | Gly | Tyr | Lys |

|   |     |     |
|---|-----|-----|
| 130   | 135 | 140 |
| Pro Val Ala Val His Ser Ala Thr Ile Phe Phe Cys Ile Ser Asp Leu |     |     |
| 145   | 150 | 155 |
| Ala Asn Ile Glu Pro Met Tyr Gln Tyr Ser Leu Thr Trp Phe Ile Asn |     | 160 |
|   | 165 | 170 |
| Leu Tyr Met His Ser Leu Thr His Ser Thr Lys Ser Glu Glu Leu Asn |     | 175 |
|   | 180 | 185 |
| Leu Arg Ile Lys Tyr Ile Ile Asp His Phe Thr Leu Ser Ile Tyr Asn |     | 190 |
|   | 195 | 200 |
| Asn Val Cys Arg Ser Leu Phe Glu Lys Asp Lys Leu Leu Phe Ser Leu |     | 205 |
|   | 210 | 215 |
| Leu Leu Thr Ile Gly Ile Met Lys Gln Lys Lys Glu Ile Thr Glu Glu |     | 220 |
| 225   | 230 | 235 |
| Val Trp Tyr Phe Leu Leu Thr Gly Gly Ile Ala Leu Asp Asn Pro Tyr |     | 240 |
|   | 245 | 250 |
| Pro Asn Pro Ala Pro Gln Trp Leu Ser Glu Lys Ala Trp Ala Glu Ile |     | 255 |
|   | 260 | 265 |
| Val Arg Ala Ser Ala Leu Pro Lys Leu His Gly Leu Met Glu His Leu |     | 270 |
|   | 275 | 280 |
| Glu Gln Asn Leu Gly Glu Trp Lys Leu Ile Tyr Asp Ser Ala Trp Pro |     | 285 |
|   | 290 | 295 |
| His Glu Glu Gln Leu Pro Gly Ser Trp Lys Phe Ser Gln Gly Leu Glu |     | 300 |
| 305   | 310 | 315 |
| Lys Met Val Ile Leu Arg Cys Leu Arg Pro Asp Lys Met Val Pro Ala |     | 320 |
|   | 325 | 330 |
| Val Arg Glu Phe Ile Ala Glu His Met Gly Lys Leu Tyr Ile Glu Ala |     | 335 |
|   | 340 | 345 |
| Pro Thr Phe Asp Leu Gln Gly Ser Tyr Asn Asp Ser Ser Cys Cys Ala |     | 350 |
|   | 355 | 360 |
| Pro Leu Ile Phe Val Leu Ser Pro Ser Ala Asp Pro Met Ala Gly Leu |     | 365 |
|   | 370 | 375 |
| Leu Lys Phe Ala Asp Asp Leu Gly Met Gly Gly Thr Arg Thr Gln Thr |     | 380 |
| 385   | 390 | 395 |
| Ile Ser Leu Gly Gln Gly Gln Gly Pro Ile Ala Ala Lys Met Ile Asn |     | 400 |
|   | 405 | 410 |
| Asn Ala Ile Lys Asp Gly Thr Trp Val Val Leu Gln Asn Cys His Leu |     | 415 |
|   | 420 | 425 |
| Ala Ala Ser Trp Met Pro Thr Leu Glu Lys Ile Cys Glu Glu Val Ile |     | 430 |
|   | 435 | 440 |
| Val Pro Glu Ser Thr Asn Ala Arg Phe Arg Leu Trp Leu Thr Ser Tyr |     | 445 |
|   | 450 | 455 |
| Pro Ser Glu Lys Phe Pro Val Ser Ile Leu Gln Asn Gly Ile Lys Met |     | 460 |
| 465   | 470 | 475 |
| Thr Asn Glu Pro Pro Lys Gly Leu Arg Ala Asn Leu Leu Arg Ser Tyr |     | 480 |
|   | 485 | 490 |
| Leu Asn Asp Pro Ile Ser Asp Pro Val Phe Phe Gln Ser Cys Ala Lys |     | 495 |
|   | 500 | 505 |
| Ala Val Met Trp Gln Lys Met Leu Phe Gly Leu Cys Phe Phe His Ala |     | 510 |
|   | 515 | 520 |
| Val Val Gln Glu Arg Arg Asn Phe Gly Pro Leu Gly Trp Asn Ile Pro |     | 525 |
|   | 530 | 535 |
| Tyr Glu Phe Asn Glu Ser Asp Leu Arg Ile Ser Met Trp Gln Ile Gln |     | 540 |
| 545   | 550 | 555 |
| Met Phe Leu Asn Asp Tyr Lys Glu Val Pro Phe Asp Ala Leu Thr Tyr |     | 560 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |  |  |
| Leu | Thr | Gly | Glu | Cys | Asn | Tyr | Gly | Gly | Arg | Val | Thr | Asp | Asp | Lys | Asp |  |  |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |  |  |
| Arg | Arg | Leu | Leu | Leu | Ser | Leu | Leu | Ser | Met | Phe | Tyr | Cys | Lys | Glu | Ile |  |  |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |  |  |
| Glu | Glu | Asp | Tyr | Tyr | Ser | Leu | Ala | Pro | Gly | Asp | Thr | Tyr | Tyr | Ile | Pro |  |  |
|     |     | 610 |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |  |  |
| Pro | His | Gly | Ser | Tyr | Gln | Ser | Tyr | Ile | Asp | Tyr | Leu | Arg | Asn | Leu | Pro |  |  |
| 625 |     |     |     |     | 630 |     |     |     | 635 |     |     |     |     | 640 |     |  |  |
| Ile | Thr | Ala | His | Pro | Glu | Val | Phe | Gly | Leu | His | Glu | Asn | Ala | Asp | Ile |  |  |
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |  |  |
| Thr | Lys | Asp | Asn | Gln | Glu | Thr | Asn | Gln | Leu | Phe | Glu | Gly | Val | Leu | Leu |  |  |
|     |     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |  |  |
| Thr | Leu | Pro | Arg | Gln | Ser | Gly | Gly | Ser | Gly | Lys | Ser | Pro | Gln | Glu | Val |  |  |
|     |     | 675 |     |     |     | 680 |     |     |     |     |     | 685 |     |     |     |  |  |
| Val | Glu | Glu | Leu | Ala | Gln | Asp | Ile | Leu | Ser | Lys | Leu | Pro | Arg | Asp | Phe |  |  |
|     |     | 690 |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     |  |  |
| Asp | Leu | Glu | Glu | Val | Met | Lys | Leu | Tyr | Pro | Val | Val | Tyr | Glu | Glu | Ser |  |  |
| 705 |     |     |     |     | 710 |     |     |     | 715 |     |     |     |     | 720 |     |  |  |
| Met | Asn | Thr | Val | Leu | Arg | Gln | Glu | Leu | Ile | Arg | Phe | Asn | Arg | Leu | Thr |  |  |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |     |  |  |
| Lys | Val | Val | Arg | Arg | Ser | Leu | Ile | Asn | Leu | Gly | Arg | Ala | Ile | Lys | Gly |  |  |
|     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |     |     |  |  |
| Gln | Val | Leu | Met | Ser | Ser | Glu | Leu | Glu | Glu | Val | Phe | Asn | Ser | Met | Leu |  |  |
|     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |     |     |     |  |  |
| Val | Gly | Lys | Val | Pro | Ala | Met | Trp | Ala | Ala | Lys | Ser | Tyr | Pro | Ser | Leu |  |  |
|     |     | 770 |     |     |     | 775 |     |     |     |     | 780 |     |     |     |     |  |  |
| Lys | Pro | Leu | Gly | Gly | Tyr | Val | Ala | Asp | Leu | Leu | Ala | Arg | Leu | Thr | Phe |  |  |
| 785 |     |     |     |     | 790 |     |     |     | 795 |     |     |     |     | 800 |     |  |  |
| Phe | Gln | Glu | Trp | Ile | Asp | Lys | Gly | Pro | Pro | Val | Val | Phe | Trp | Ile | Ser |  |  |
|     |     |     |     | 805 |     |     |     | 810 |     |     |     |     |     | 815 |     |  |  |
| Gly | Phe | Tyr | Phe | Thr | Gln | Ser | Phe | Leu | Thr | Gly | Val | Ser | Gln | Asn | Tyr |  |  |
|     |     |     | 820 |     |     |     |     | 825 |     |     |     |     | 830 |     |     |  |  |
| Ala | Arg | Lys | Tyr | Thr | Ile | Pro | Ile | Asp | His | Ile | Gly | Phe | Glu | Phe | Glu |  |  |
|     |     | 835 |     |     |     |     | 840 |     |     |     |     | 845 |     |     |     |  |  |
| Val | Thr | Pro | Gln | Glu | Thr | Val | Met | Glu | Asn | Asn | Pro | Glu | Asp | Gly | Ala |  |  |
|     |     | 850 |     |     |     | 855 |     |     |     |     | 860 |     |     |     |     |  |  |
| Tyr | Ile | Lys | Gly | Leu | Phe | Leu | Glu | Gly | Ala | Arg | Trp | Asp | Arg | Lys | Thr |  |  |
| 865 |     |     |     |     | 870 |     |     |     | 875 |     |     |     |     | 880 |     |  |  |
| Met | Gln | Ile | Gly | Glu | Ser | Leu | Pro | Lys | Ile | Leu | Tyr | Asp | Pro | Leu | Pro |  |  |
|     |     |     |     | 885 |     |     |     | 890 |     |     |     |     |     | 895 |     |  |  |
| Ile | Ile | Trp | Leu | Lys | Pro | Gly | Glu | Ser | Ala | Met | Phe | Leu | His | Gln | Asp |  |  |
|     |     |     | 900 |     |     |     |     | 905 |     |     |     |     | 910 |     |     |  |  |
| Ile | Tyr | Val | Cys | Pro | Val | Tyr | Lys | Thr | Ser | Ala | Arg | Arg | Gly | Thr | Leu |  |  |
|     |     | 915 |     |     |     |     | 920 |     |     |     |     | 925 |     |     |     |  |  |
| Ser | Thr | Thr | Gly | His | Ser | Thr | Asn | Tyr | Val | Leu | Ser | Ile | Glu | Leu | Pro |  |  |
|     |     | 930 |     |     |     | 935 |     |     |     |     | 940 |     |     |     |     |  |  |
| Thr | Asp | Met | Pro | Gln | Lys | His | Trp | Ile | Asn | Arg | Gly | Val | Ala | Ser | Leu |  |  |
| 945 |     |     |     |     | 950 |     |     |     | 955 |     |     |     |     | 960 |     |  |  |
| Cys | Gln | Leu | Asp | Asn |     |     |     |     |     |     |     |     |     |     |     |  |  |
|     |     |     |     | 965 |     |     |     |     |     |     |     |     |     |     |     |  |  |

&lt;210&gt; 4651

&lt;211&gt; 869

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<213> Homo sapiens

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 cagcagatgc ggcccatccc cacggtggcc cgcgcctacc cactggtggg ccacgcgctg  
 240  
 ctgatgaagc cggacggggc agaatttttt cagcagatca ttgagtacac agaggaatac  
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 cgccacatgc cgctgctgaa gctctgggtc gggccagtgc ccatggtggc cctttataat  
 360  
 gcagaaaatg tggaggtaat tttactagt tcaaagcaaa ttgacaaatc ctctatgtac  
 420  
 aagtttttag aaccatggct tggcctagga cttcttacia gtactggaaa caaatggcgc  
 480  
 tccaggagaa agatgttaac acccactttc cattttacca ttctggaaga tttcttagat  
 540  
 atcatgaatg aacaagcaaa tatattggtt aagaaacttg aaaaacacat taaccaagaa  
 600  
 gcatttaact gcttttttta catcactctt tgtgccttag atatcatctg tgaaacagct  
 660  
 atggggaaga atattggtgc tcaaagtaat gatgattccg agtatgtccg tgcagtttat  
 720  
 agaatgagtg agatgatatt tccaagaata aagatgcctt ggctttggct tgatctctgg  
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 869

<210> 4652  
 <211> 289  
 <212> PRT  
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 Gly Ala Ala Ser Ala Val Ser Leu Ala Gly Ala Ser Leu Val Leu Ser  
 35 40 45  
 Leu Leu Gln Arg Val Ala Ser Tyr Ala Arg Lys Trp Gln Gln Met Arg  
 50 55 60  
 Pro Ile Pro Thr Val Ala Arg Ala Tyr Pro Leu Val Gly His Ala Leu  
 65 70 75 80  
 Leu Met Lys Pro Asp Gly Arg Glu Phe Phe Gln Gln Ile Ile Glu Tyr  
 85 90 95  
 Thr Glu Glu Tyr Arg His Met Pro Leu Leu Lys Leu Trp Val Gly Pro

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<212> DNA
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120
gtttgaacct ctaaccaaaa ggaacgaaga tgccgaggag cctgcctacg gagacacggc
180
cagtaacgga gatccccaga tccacgtggg actcctgcgc gacagtggca gcgagtgtct
240
cctcgtgcac gtgctgcagc tgaagaacct ggcggggctg gcggtgaagg aagactgcaa
300
agtccacatc cgagtctatt tgccccact tcggtggata gcggtgtag caactgcacc
360
cagaccagcc ctccgtaccc agagccctgt tgcattgggta tcgactccat cctggggccac
420
ccatttgctg ctcaggcagg gccttacagc cccgagaaat ttcagccctc gcctcttaag
480
gttgataagg aaaccaaacac ggaagatctc tttctggaag aagcagccag cctcgtgaag
540
gagcggccca gccgcggggc ccgagggtcg ccttttgttc ggagtggcac gattgtccgt
600
tcccagacat tctcgcctgg agcacgaagc cagtatgttt gcagacttta tcgtagtgac
660
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agcgacagtt caacgctgcc ccggaagtcc ccctttgtcc gaaatacttt ggaaagacga  
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 780  
 ctggacttgg agctggatct ccaggcgtcg agaacacggc agaggcagct gaatgaggag  
 840  
 ctctgcgccc tccgtgagct gcggcagcgg ttggaggacg cccagctccg tggccagact  
 900  
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 960  
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 aagaaggcct ccaaggagat ctaccagctg cgtgggcaga gccacaaaga gcccatccaa  
 1080  
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<211> 255

<212> PRT

<213> Homo sapiens

<400> 4654

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Ile | Asp | Ser | Ile | Leu | Gly | His | Pro | Phe | Ala | Ala | Gln | Ala | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Pro | Tyr | Ser | Pro | Glu | Lys | Phe | Gln | Pro | Ser | Pro | Leu | Lys | Val | Asp | Lys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Thr | Asn | Thr | Glu | Asp | Leu | Phe | Leu | Glu | Glu | Ala | Ala | Ser | Leu | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Lys | Glu | Arg | Pro | Ser | Arg | Arg | Ala | Arg | Gly | Ser | Pro | Phe | Val | Arg | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Thr | Ile | Val | Arg | Ser | Gln | Thr | Phe | Ser | Pro | Gly | Ala | Arg | Ser | Gln |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Tyr | Val | Cys | Arg | Leu | Tyr | Arg | Ser | Asp | Ser | Asp | Ser | Ser | Thr | Leu | Pro |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Arg | Lys | Ser | Pro | Phe | Val | Arg | Asn | Thr | Leu | Glu | Arg | Arg | Thr | Leu | Arg |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Tyr | Lys | Gln | Ser | Cys | Arg | Ser | Ser | Leu | Ala | Glu | Leu | Met | Ala | Arg | Thr |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Leu | Asp | Leu | Glu | Leu | Asp | Leu | Gln | Ala | Ser | Arg | Thr | Arg | Gln | Arg |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gln | Leu | Asn | Glu | Glu | Leu | Cys | Ala | Leu | Arg | Glu | Leu | Arg | Gln | Arg | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Glu | Asp | Ala | Gln | Leu | Arg | Gly | Gln | Thr | Asp | Leu | Pro | Pro | Trp | Val | Leu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Arg | Asp | Glu | Arg | Leu | Arg | Gly | Leu | Leu | Arg | Glu | Ala | Glu | Arg | Gln | Thr |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| Arg | Gln | Thr | Lys | Leu | Asp | Tyr | Arg | His | Glu | Gln | Ala | Ala | Glu | Lys | Met |

|   |     |     |
|---|-----|-----|
| 195   | 200 | 205 |
| Leu Lys Lys Ala Ser Lys Glu Ile Tyr Gln Leu Arg Gly Gln Ser His |     |     |
| 210   | 215 | 220 |
| Lys Glu Pro Ile Gln Val Gln Thr Phe Arg Glu Lys Ile Ala Phe Phe |     |     |
| 225   | 230 | 235 |
| Thr Arg Pro Arg Ile Asn Ile Pro Pro Leu Pro Ala Asp Asp Val     |     | 240 |
| 245   | 250 | 255 |

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 cgccacgggg tccgccgcgc cgcgccgcgc cgcttgtag ttctggaaga tgaagtagag  
 180  
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 cgtgcgccacc tcggcgccca cccacacggc cacgtagcgc agcaccagca ggaagcacac  
 300  
 gtcgcccacc agcacgatga tgcacacgcc gatcttgcg gggccctggt tctgctccac  
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 caggtacgcg tccatgacgg ccatgctgcc catgatcacc agcgtggtca ggcacacgtg  
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<210> 4656  
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 <212> PRT  
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<400> 4656  
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 Gln Gln Gln Arg Gln Arg Leu Ala Arg His Gly Val Arg Arg Ala Ala  
 35 40 45  
 Pro Arg Arg Leu Val Val Leu Glu Asp Glu Val Glu Leu Asp Leu Gln  
 50 55 60  
 His Glu Asp Val Lys Glu Pro Gln Asp His Gly Val Ala Ala Leu Gly  
 65 70 75 80  
 Arg Ala His Leu Gly Ala His Pro His Gly His Val Ala Gln His Gln  
 85 90 95  
 Gln Glu Ala His Val Ala His Gln His Asp Asp Ala His Ala Asp Leu  
 100 105 110  
 Ala Arg Ala Leu Val Leu Leu His Gln Val Arg Val His Asp Gly His  
 115 120 125  
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130 135 140  
 Gly Arg Gln His His Gly Arg Pro  
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<210> 4657  
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 <212> DNA  
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 aaccagctgc accgcaagtc tgtcaagaag gggtttgact tcacgctaata ggtggcaggg  
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 gagtcaggcc tagggaaatc caccctcatc aacagcctct tcctcaccaa cctctatgag  
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 240  
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<210> 4658  
 <211> 233  
 <212> PRT  
 <213> Homo sapiens

<400> 4658  
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 Glu Ser Gly Leu Gly Lys Ser Thr Leu Ile Asn Ser Leu Phe Leu Thr  
 35 40 45  
 Asn Leu Tyr Glu Asp Arg Gln Val Pro Glu Ala Ser Ala Arg Leu Thr  
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 65 70 75 80  
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120
ggcgccgggtg gtcgttgtga cccaacctgg agtcgggtccc ggtccggccc ccagaactc
180
caactggcag acaggcatgt gtgactgttt cagcgactgc ggagtctgtc tctgtggcac
240
attttgtttc ccgtgccttg ggtgtcaagt tgcagctgat atgaatgaat gctgtctgtg
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gctttcatat tatcgaattc gaatttcctg gcttataaac tttttaaaatt acatttgaaa
720
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840

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Ser Val Arg Ala Phe His His Gln Phe Leu Glu Ser Thr His Gly Ser  
35 40 45  
Pro Ser Val Asp Ile Ser Leu Asp Leu Ala Lys Ser Thr Met Arg Thr  
50 55 60  
Ala Lys Ser Cys His Ile Val Ile Thr Asn Arg Ser Arg Asp Ala Ile  
65 70 75 80  
Ser Gly Pro Val Glu Ser Pro His Cys Asp Ala Cys Ser Thr Gln Thr  
85 90 95  
Ala Phe Ile His Ile Ser Cys Asn Leu Thr Pro Lys Ala Arg Glu Thr  
100 105 110  
Lys Cys Ala Thr Glu Thr Asp Ser Ala Val Ala Glu Thr Val Thr His  
115 120 125  
Ala Cys Leu Pro Val Gly Val Leu Gly Gly Arg Thr Gly Thr Asp Ser  
130 135 140  
Arg Leu Gly His Asn Asp His Arg Arg Leu Ser Leu His Phe Gln Cys  
145 150 155 160  
Arg Ala Phe His Val Val Phe Ile Cys Gly Glu Ile Leu Ser Gln Ala  
165 170 175  
Thr Arg His Phe Leu Leu Gly Thr Leu Phe Thr Asn Phe His Cys Phe  
180 185 190

<210> 4661  
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120  
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153

<210> 4662  
<211> 51  
<212> PRT  
<213> Homo sapiens

<400> 4662  
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|                                 |                                 |    |    |
|---------------------------------|---------------------------------|----|----|
| 1                               | 5                               | 10 | 15 |
| Tyr Met Ile Ser Lys His Ser His | Glu Gln Ser Asp Arg Gly Glu Gly |    |    |
| 20                              | 25                              | 30 |    |
| Val Glu Val Val Gln Asn Glu Pro | Phe Glu Asp Pro His His Gly His |    |    |
| 35                              | 40                              | 45 |    |
| Gly Gln Phe                     |                                 |    |    |
| 50                              |                                 |    |    |

<210> 4663  
 <211> 1550  
 <212> DNA  
 <213> Homo sapiens

<400> 4663  
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 240  
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 aagagattca gcagcgaacg gaagctcctg gaggtcagag gccctttcat catcaggcag  
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 420  
 gaggaggacc tcaagttcgc ctcgaccatg gtccacgccc tcaacaccat cctgctgacc  
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 780  
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 1140  
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 1200

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acagagctgg ctgcccaccc agtggggggc tatagcctca gagaccactc atcctctgga  
1320  
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1380  
gctctggcct tgtgtgtata tgtatacata cgtgaacaca tgctgtgtg tgtgtgtgtg  
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<210> 4664

<211> 347

<212> PRT

<213> Homo sapiens

<400> 4664

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Phe | Arg | His | Thr | Asp | Ser | Leu | Phe | Pro | Ile | Leu | Leu | Gln | Thr | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Asp | Glu | Ser | Asp | Glu | Val | Ile | Leu | Lys | Asp | Leu | Glu | Val | Leu | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Ile | Ala | Ser | Ser | Pro | Ala | Gly | Gln | Thr | Asp | Asp | Pro | Gly | Pro | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp | Gly | Pro | Asp | Leu | Gln | Ala | Ser | His | Ser | Glu | Leu | Gln | Val | Pro | Thr |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Gly | Arg | Ala | Gly | Leu | Leu | Asn | Thr | Ser | Gly | Thr | Lys | Gly | Leu | Glu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Cys | Ser | Pro | Ser | Thr | Pro | Thr | Met | Asn | Ser | Tyr | Phe | Tyr | Lys | Phe | Met |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ile | Asn | Leu | Leu | Lys | Arg | Phe | Ser | Ser | Glu | Arg | Lys | Leu | Leu | Glu | Val |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Gly | Pro | Phe | Ile | Ile | Arg | Gln | Leu | Cys | Leu | Leu | Leu | Asn | Ala | Glu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Asn | Ile | Phe | His | Ser | Met | Ala | Asp | Ile | Leu | Leu | Arg | Glu | Glu | Asp | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Lys | Phe | Ala | Ser | Thr | Met | Val | His | Ala | Leu | Asn | Thr | Ile | Leu | Leu | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Ser | Thr | Glu | Leu | Phe | Gln | Leu | Arg | Asn | Gln | Leu | Lys | Asp | Leu | Lys | Thr |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Leu | Glu | Ser | Gln | Asn | Leu | Phe | Cys | Cys | Leu | Tyr | Arg | Ser | Trp | Cys | His |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Asn | Pro | Val | Thr | Thr | Val | Ser | Leu | Cys | Phe | Leu | Thr | Gln | Asn | Tyr | Arg |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| His | Ala | Tyr | Asp | Leu | Ile | Gln | Lys | Phe | Gly | Asp | Leu | Glu | Val | Thr | Val |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asp | Phe | Leu | Ala | Glu | Val | Asp | Lys | Leu | Val | Gln | Leu | Ile | Glu | Cys | Pro |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Ile | Phe | Thr | Tyr | Leu | Arg | Leu | Gln | Leu | Leu | Asp | Val | Lys | Asn | Asn | Pro |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Tyr | Leu | Ile | Lys | Ala | Leu | Tyr | Gly | Leu | Leu | Met | Leu | Leu | Pro | Gln | Ser |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ser | Ala | Phe | Gln | Leu | Leu | Ser | His | Arg | Leu | Gln | Cys | Val | Pro | Asn | Pro |

|   |     |     |
|---|-----|-----|
| 275   | 280 | 285 |
| Glu Leu Leu Gln Thr Glu Asp Ser Leu Lys Ala Ala Pro Lys Ser Gln |     |     |
| 290   | 295 | 300 |
| Lys Ala Asp Ser Pro Ser Ile Asp Tyr Ala Glu Leu Leu Gln His Phe |     |     |
| 305   | 310 | 315 |
| Glu Lys Val Gln Asn Lys His Leu Glu Val Arg His Gln Arg Ser Gly |     |     |
| 325   | 330 | 335 |
| Arg Gly Asp His Leu Asp Arg Arg Val Val Leu                     |     |     |
| 340   | 345 |     |

&lt;210&gt; 4665

&lt;211&gt; 1043

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4665

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300
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780
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900
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1043

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&lt;210&gt; 4666



<211> 167  
 <212> PRT  
 <213> Homo sapiens

<400> 4666

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Arg | His | Glu | Gly | Gly | Ser | His | Arg | Lys | Ala | Ala | Arg | Ser | Val | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Ile | Thr | Arg | Arg | Val | Phe | Met | Trp | Thr | Val | Ser | Gly | Thr | Pro | Cys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Glu | Phe | Trp | Ser | Arg | Phe | Arg | Lys | Glu | Lys | Glu | Pro | Val | Val | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Glu | Thr | Val | Glu | Glu | Lys | Lys | Glu | Pro | Ile | Leu | Val | Cys | Pro | Pro | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Arg | Ser | Arg | Ala | Tyr | Thr | Pro | Pro | Glu | Asp | Leu | Gln | Ser | Arg | Leu | Glu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ser | Tyr | Val | Lys | Glu | Val | Phe | Gly | Ser | Ser | Leu | Pro | Ser | Asn | Trp | Gln |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Asp | Ile | Ser | Leu | Glu | Asp | Ser | Arg | Leu | Lys | Phe | Asn | Leu | Leu | Ala | His |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Ala | Asp | Asp | Leu | Gly | His | Val | Val | Pro | Asn | Ser | Arg | Leu | His | Gln |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Met | Cys | Arg | Val | Arg | Asp | Val | Leu | Asp | Phe | Tyr | Asn | Val | Pro | Ile | Gln |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asp | Arg | Ser | Lys | Phe | Asp | Glu | Leu | Ser | Ala | Ser | Asn | Leu | Pro | Pro | Asn |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Leu | Lys | Ile | Thr | Trp | Ser | Tyr |     |     |     |     |     |     |     |     |     |
|     |     |     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |

<210> 4667  
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 <212> DNA  
 <213> Homo sapiens

<400> 4667

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480
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600

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 780  
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 960  
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 1020  
 aaaaaaaaaa a  
 1031

<210> 4668  
 <211> 207  
 <212> PRT  
 <213> Homo sapiens

<400> 4668  
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 Ala Gln Lys Ala Arg Trp Leu Ile Pro Leu Leu Glu Gly Lys Ala Arg  
 35 40 45  
 Ser Cys Phe Ala Met Thr Glu Pro Gln Val Ala Ser Ser Asp Ala Thr  
 50 55 60  
 Asn Ile Glu Ala Ser Ile Arg Glu Glu Asp Ser Phe Tyr Val Ile Asn  
 65 70 75 80  
 Gly His Lys Trp Trp Ile Thr Gly Ile Leu Asp Pro Arg Cys Gln Leu  
 85 90 95  
 Cys Val Phe Met Gly Lys Thr Asp Pro His Ala Pro Arg His Arg Gln  
 100 105 110  
 Gln Ser Val Leu Leu Val Pro Met Asp Thr Pro Gly Ile Lys Ile Ile  
 115 120 125  
 Arg Pro Leu Thr Val Tyr Gly Leu Glu Asp Ala Pro Gly Gly His Gly  
 130 135 140  
 Glu Val Arg Phe Glu His Val Arg Val Pro Lys Glu Asn Met Val Leu  
 145 150 155 160  
 Gly Pro Gly Arg Gly Phe Glu Ile Ala Gln Gly Arg Leu Gly Pro Gly  
 165 170 175  
 Arg Ile His His Cys Met Arg Leu Ile Gly Phe Ser Glu Arg Ala Leu  
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<210> 4669  
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 <212> DNA  
 <213> Homo sapiens

&lt;400&gt; 4669

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 120  
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 180  
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 240  
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 300  
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 360  
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 420  
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 540  
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 600  
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 660  
 gattcaagag tggatataaa ctt  
 683

&lt;210&gt; 4670

&lt;211&gt; 135

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4670

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ser | Phe | Ser | Gly | Leu | Arg | Gly | Ile | Ile | Gln | Glu | Lys | Tyr | Arg | Ala |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Asn | Lys | Lys | Lys | Gln | Lys | Val | Phe | Gln | His | Asn | Glu | Leu | Lys | Lys | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Cys | Val | Gln | Ala | Gly | Phe | Gln | Asp | Met | Asn | Ile | Lys | Lys | Gln | Ile |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gln | Glu | Gln | His | Gln | Ala | Ala | Ile | Ile | Ile | Gln | Lys | His | Cys | Lys | Ala |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Phe | Lys | Ile | Arg | Lys | His | Tyr | Leu | His | Ile | Arg | Ala | Thr | Val | Val | Ser |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ile | Gln | Arg | Arg | Tyr | Arg | Lys | Leu | Thr | Ala | Val | Arg | Thr | Gln | Ala | Val |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Ile | Cys | Ile | Gln | Ser | Tyr | Tyr | Arg | Gly | Phe | Lys | Val | Arg | Lys | Asp | Ile |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |
| Gln | Asn | Met | His | Arg | Ala | Ala | Thr | Leu | Ile | Gln | Ser | Phe | Tyr | Arg | Met |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     | 125 |     |
| His | Arg | Ala | Lys | Val | Asp | Tyr |     |     |     |     |     |     |     |     |     |
|     |     | 130 |     |     |     | 135 |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4671

&lt;211&gt; 657

<212> DNA  
 <213> Homo sapiens

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 120  
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 180  
 taggccaggc tgctgcagt gtttcagcat ctatccgcag ggatccacgg ggaagctggt  
 240  
 gtgcgcggga taaagatggc aaccgccgat gagattgtga aactcatgct cgaccacatg  
 300  
 acaaacacca ccaacgcgtc ccatgtgect gtgcagcccg gctcctcagt tgtgatgatg  
 360  
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 420  
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<210> 4672  
 <211> 152  
 <212> PRT  
 <213> Homo sapiens

<400> 4672  
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 Lys Leu Met Leu Asp His Met Thr Asn Thr Thr Asn Ala Ser His Val  
 35 40 45  
 Pro Val Gln Pro Gly Ser Ser Val Val Met Met Val Asn Asn Leu Gly  
 50 55 60  
 Gly Leu Ser Phe Leu Glu Leu Gly Ile Ile Ala Asp Ala Thr Val Arg  
 65 70 75 80  
 Ser Leu Glu Gly Arg Gly Val Lys Ile Ala Arg Ala Leu Val Gly Thr  
 85 90 95  
 Phe Met Ser Ala Leu Glu Met Pro Gly Ile Ser Leu Thr Leu Leu  
 100 105 110  
 Val Asp Glu Pro Leu Leu Lys Leu Ile Asp Ala Glu Thr Thr Ala Ala  
 115 120 125  
 Ala Trp Pro Arg Ser Gly Trp Arg Trp Cys Trp Asn Gly Cys Ala Ala  
 130 135 140  
 Leu Ser Trp Ala Trp Arg Asn Thr  
 145 150

<210> 4673  
<211> 1335  
<212> DNA  
<213> Homo sapiens

<400> 4673  
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| Gly | Pro | Arg | Asn | Glu | Asp | Leu | Ser | Leu | Asp | Tyr | Ala | Ser | Gln | Pro | Ala |
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|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
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|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
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| Glu | Leu | Ser | Asn | Asp | Gly | Ala | His | Lys | Gln | Phe | Asp | His | Tyr | Leu | Glu |
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|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
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| Ser | Ser | Lys | Leu | Tyr | Arg | Phe | Phe | Lys | Tyr | Ile | Glu | Asn | Arg | Asp | Val |
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| Met | Ser | Trp | Glu | Lys | Glu | Glu | Gly | Lys | Ser | Arg | His | Val | Asp | Phe | Gln |
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| Cys | Val | Arg | Ser | Lys | Ser | Leu | Thr | Asn | Leu | Val | Ala | Ala | Gly | Asp | Asp |
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| Xaa | Ile | Pro | Arg | Leu | Ile | Leu | Arg | Pro | His | Met | Pro | Gln | Gln | Gln | His |
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| Lys | Val | Ser | Pro | Ala | Ser | Glu | Ser | Pro | Phe | Ser | Glu | Glu | Glu | Ser | Arg |
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| Glu | Phe | Asn | Pro | Ser | Ser | Ser | Gly | Arg | Ser | Ala | Arg | Thr | Val | Ser | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asn | Ser | Phe | Cys | Ser | Asp | Asp | Thr | Gly | Cys | Pro | Ser | Ser | Gln | Ser | Val |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ser | Pro | Val | Lys | Thr | Pro | Ser | Asp | Ala | Gly | Asn | Ser | Pro | Ile | Gly | Phe |
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| Cys | Pro | Gly | Ser | Asp | Glu | Gly | Phe | Thr | Arg | Lys | Lys | Cys | Thr | Ile | Gly |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Met | Val | Gly | Glu | Gly | Ser | Ile | Gln | Ser | Ser | Arg | Tyr | Lys | Lys | Glu | Ser |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Lys | Ser | Gly | Leu | Val | Lys | Pro | Gly | Ser | Glu | Ala | Asp | Phe | Ser | Ser | Ser |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Ser | Thr | Gly | Ser | Ile | Ser | Ala | Pro | Glu | Val | His | Met | Ser | Thr | Ala |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
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| Ser | Asn | Gly | Ala | Ser | Ser | His | Lys | Pro | Gly | Ser | Ser | Ser | Ser | Ser | Pro |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Arg | Glu | Lys | Asp | Leu | Leu | Ser | Met | Leu | Cys | Arg | Asn | Gln | Leu | Ser | Pro |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Val | Asn | Ile | His | Pro | Ser | Tyr | Ala | Pro | Ser | Ser | Pro | Ser | Ser | Ser | Asn |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ser | Gly | Ser | Tyr | Lys | Gly | Ser | Asp | Cys | Ser | Pro | Ile | Met | Arg | Arg | Ser |
|     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |
| Gly | Arg | Tyr | Met | Ser | Cys | Gly | Glu | Asn | His | Gly | Val | Arg | Pro | Pro | Asn |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Pro | Glu | Gln | Tyr | Leu | Thr | Pro | Leu | Gln | Gln | Lys | Glu | Val | Thr | Val | Arg |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| His | Leu | Lys | Thr | Lys | Leu | Lys | Glu | Ser | Glu | Arg | Arg | Leu | His | Glu | Arg |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Glu | Ser | Glu | Ile | Val | Glu | Leu | Lys | Ser | Gln | Leu | Ala | Arg | Met | Arg | Glu |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Asp | Trp | Ile | Glu | Glu | Glu | Cys | His | Arg | Val | Glu | Ala | Gln | Leu | Ala | Leu |
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| Leu | Glu | Leu | Val | His | Ser | Thr | Pro | Gly | Ala | Asn | Val | Leu | Glu | Leu | Leu |
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<210> 4678  
 <211> 133  
 <212> PRT  
 <213> Homo sapiens

<400> 4678  
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 Arg Thr Val Phe Ile Trp Phe Val Gly Gln Leu Leu Gly Gly Glu Leu  
 35 40 45  
 Lys Gly Tyr Ser Lys Thr Asn Thr Thr Ser Ser Arg Pro Ala Ser Ser  
 50 55 60  
 Arg Gly Ser Leu Ser Ser Ser Ser Ser Ser Ser Ser Leu Thr Lys  
 65 70 75 80  
 Asp Ala Leu Pro Ser Ser Leu Lys Ser Asp Ser Thr Thr Ile Thr Ser  
 85 90 95  
 Gly Leu Val Phe Pro Phe Arg Ser Leu Cys Val Asn Pro Ala Lys Ser  
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 Val Lys Tyr Leu Glu  
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<210> 4679  
 <211> 2284  
 <212> DNA  
 <213> Homo sapiens

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 2284

<210> 4680

<211> 112

<212> PRT

<213> Homo sapiens

<400> 4680

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| Met | Arg | Gly | Ala | His | Thr | Glu | Arg | Thr | Thr | Cys | Ser | Pro | Pro | Met | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Ser | Phe | His | Arg | Gly | Thr | Cys | Leu | Glu | Phe | Trp | His | Arg | Gly | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Glu | His | Ser | Ser | Asp | Ile | Phe | Leu | Gln | Leu | Glu | Met | Leu | Cys | Trp |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Ser | Pro | Cys | Ser | Leu | Thr | Phe | Ser | Arg | Ala | Ile | Lys | Ala | Thr | Ser | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ile | Ala | Gly | Pro | Gln | Thr | Phe | Gln | Gly | Lys | His | Cys | Phe | Thr | Ser | Cys |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Arg | Gln | Leu | Ile | Ser | Gln | Lys | Pro | Leu | Gln | Lys | Pro | Val | Leu | Pro | Gly |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Thr | Ala | Gly | Ala | Gly | Val | Cys | Lys | Ile | Lys | Glu | Gly | Gln | Leu | Arg | Thr |
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<210> 4681

<211> 906

<212> DNA

<213> Homo sapiens

<400> 4681

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<210> 4682  
 <211> 153  
 <212> PRT  
 <213> Homo sapiens

<400> 4682  
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 Phe Leu Phe His Gln Thr Thr Arg Gln Lys Asn Leu Ser Phe Leu Pro  
 35 40 45  
 Pro Phe Ser Phe Phe Pro Ser Cys Thr His Leu Glu Asn Phe Thr Phe  
 50 55 60  
 Leu Glu Ser Pro Gln Asn Asn Thr Lys Val Ile Val Gly Ala Thr Gly  
 65 70 75 80  
 Phe Met Leu Tyr Cys Gly Ala Arg Gly Lys Thr Cys Leu Tyr Ala Gly  
 85 90 95  
 Asn Thr His Asn His Ser Phe Arg Phe Val Cys Leu Met Val Ile Cys  
 100 105 110  
 His Lys Arg Asp Leu Gln Lys Gln Gly Ala Leu Val Asn Val Gln Tyr  
 115 120 125  
 Leu Asp Phe Cys Val Leu Arg Thr Gln Lys Gly Ala Thr Leu Leu Phe  
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&lt;210&gt; 4683

&lt;211&gt; 3246

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4683

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<210> 4684  
 <211> 385  
 <212> PRT  
 <213> Homo sapiens

<400> 4684  
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 Pro His Ala Arg Ser Arg Val Arg Pro Ala Pro Lys Thr Ile Pro Gln  
 35 40 45  
 Gln Thr His Gly Thr Ala Arg Ile Gly Thr His Asn Gly Thr Phe His  
 50 55 60  
 Cys Asp Glu Ala Leu Ala Cys Ala Leu Leu Arg Leu Leu Pro Glu Tyr  
 65 70 75 80  
 Arg Asp Ala Glu Ile Val Arg Thr Arg Asp Pro Glu Lys Leu Ala Ser  
 85 90 95  
 Cys Asp Ile Val Val Asp Val Gly Gly Glu Tyr Asp Pro Arg Arg His  
 100 105 110  
 Arg Tyr Asp His His Gln Arg Ser Phe Thr Glu Thr Met Ser Ser Leu  
 115 120 125  
 Ser Pro Gly Lys Pro Trp Gln Thr Lys Leu Ser Ser Ala Gly Leu Ile  
 130 135 140  
 Tyr Leu His Phe Gly His Lys Leu Leu Ala Gln Leu Leu Gly Thr Ser  
 145 150 155 160  
 Glu Glu Asp Ser Met Val Gly Thr Leu Tyr Asp Lys Met Tyr Glu Asn  
 165 170 175  
 Phe Val Glu Glu Val Asp Ala Val Asp Asn Gly Ile Ser Gln Trp Ala  
 180 185 190  
 Glu Gly Glu Pro Arg Tyr Ala Leu Thr Thr Thr Leu Ser Ala Arg Val  
 195 200 205  
 Ala Arg Leu Asn Pro Thr Trp Asn His Pro Asp Gln Asp Thr Glu Ala  
 210 215 220  
 Gly Phe Lys Arg Ala Met Asp Leu Val Gln Glu Glu Phe Leu Gln Arg  
 225 230 235 240  
 Leu Asp Phe Tyr Gln His Ser Trp Leu Pro Ala Arg Ala Leu Val Glu  
 245 250 255  
 Glu Ala Leu Ala Gln Arg Phe Gln Val Asp Pro Ser Gly Glu Ile Val  
 260 265 270  
 Glu Leu Ala Lys Gly Ala Cys Pro Trp Lys Glu His Leu Tyr His Leu  
 275 280 285  
 Glu Ser Gly Leu Ser Pro Pro Val Ala Ile Phe Phe Val Ile Tyr Thr  
 290 295 300  
 Asp Gln Ala Gly Gln Trp Arg Ile Gln Cys Val Pro Lys Glu Pro His

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305          310          315          320
Ser Phe Gln Ser Arg Leu Pro Leu Pro Glu Pro Trp Arg Gly Leu Arg
          325          330          335
Asp Glu Ala Leu Asp Gln Val Ser Gly Ile Pro Gly Cys Ile Phe Val
          340          345          350
His Ala Ser Gly Phe Ile Gly Gly His Arg Thr Arg Glu Gly Ala Leu
          355          360          365
Ser Met Ala Arg Ala Thr Leu Ala Gln Arg Ser Tyr Leu Pro Gln Ile
          370          375          380
Ser
385

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<210> 4685
<211> 618
<212> DNA
<213> Homo sapiens

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<400> 4685
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240
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420
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480
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600
gctggagtgt gctcgcca
618

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<210> 4686
<211> 106
<212> PRT
<213> Homo sapiens

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<400> 4686
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Asp Ala Arg Gly Arg Ala Gly His Arg Ser Ala Ala Ala Ser Asn Leu
20     25     30
Ser Gly Leu Ser Leu Gln Glu Ala Gln Gln Ile Leu Asn Val Ser Lys
35     40     45
Leu Ser Pro Glu Glu Val Gln Lys Asn Tyr Glu His Leu Phe Lys Val

```

```

      50              55              60
Asn Asp Lys Ser Val Gly Gly Ser Phe Tyr Leu Gln Ser Lys Val Val
65              70              75              80
Arg Ala Lys Glu Arg Leu Asp Glu Glu Leu Lys Ile Gln Ala Gln Glu
      85              90              95
Asp Arg Glu Lys Gly Gln Met Pro His Thr
      100              105

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<210> 4687  
 <211> 309  
 <212> DNA  
 <213> Homo sapiens

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<400> 4687
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cggcgctctc gcacccccctg tgggtggcat tgatgagcgc cctaatactg ggtctgcttt
180
tcgtggcggg ctacagcttg tcccatggcg aggtctccta tgaccactc tatgctggct
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atgggggggg
309

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<210> 4688  
 <211> 90  
 <212> PRT  
 <213> Homo sapiens

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<400> 4688
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Ala Leu Pro Val Ser Tyr Ala Leu Asn His Val Ser Ala Leu Ser His
      20              25              30
Pro Leu Trp Val Ala Leu Met Ser Ala Leu Ile Leu Gly Leu Leu Phe
      35              40              45
Val Ala Val Tyr Ser Leu Ser His Gly Glu Val Ser Tyr Asp Pro Leu
      50              55              60
Tyr Ala Gly Phe Ala Val Phe Ala Phe Thr Ser Gly Gly Asp Leu Ile
65              70              75              80
Ile Ala Leu Gln Glu Asp Ser Tyr Gly Gly
      85              90

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<210> 4689  
 <211> 898  
 <212> DNA  
 <213> Homo sapiens

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<400> 4689
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 300  
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&lt;210&gt; 4690

&lt;211&gt; 299

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4690

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Pro | Arg | Pro | Ser | Arg | Arg | Ile | Ala | Pro | Leu | Asp | Gly | Ala | Arg | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Leu | Ser | Leu | Arg | Trp | Arg | Trp | Arg | Thr | Pro | Asp | Cys | Pro | Pro | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Ala | Pro | Glu | Asp | Leu | Met | Phe | Leu | Leu | Asp | Ser | Ser | Ala | Ser | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |     |
| Ser | His | Tyr | Glu | Phe | Ser | Arg | Val | Arg | Glu | Phe | Val | Gly | Gln | Leu | Val |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ala | Pro | Leu | Pro | Leu | Ala | Pro | Xaa | Ala | Leu | Arg | Ala | Ser | Leu | Val | His |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Val | Gly | Ser | Arg | Pro | Tyr | Thr | Glu | Phe | Pro | Phe | Gly | Gln | His | Ser | Ser |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Gly | Glu | Ala | Ala | Gln | Asp | Ala | Val | Arg | Ala | Ser | Ala | Gln | Arg | Met | Gly |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Asp | Thr | His | Thr | Gly | Leu | Ala | Leu | Val | Tyr | Ala | Lys | Glu | Gln | Leu | Phe |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Ala | Glu | Ala | Ser | Gly | Ala | Arg | Pro | Gly | Val | Pro | Lys | Val | Leu | Val | Trp |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Val | Thr | Asp | Gly | Gly | Ser | Ser | Asp | Pro | Val | Gly | Pro | Pro | Met | Gln | Glu |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |
| Leu | Lys | Asp | Leu | Gly | Val | Thr | Val | Phe | Ile | Val | Ser | Thr | Gly | Arg |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |
| Asn | Phe | Leu | Glu | Leu | Ser | Ala | Ala | Ala | Ser | Ala | Pro | Ala | Glu | Lys |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |
| Leu | His | Phe | Val | Asp | Val | Asp | Asp | Leu | His | Ile | Ile | Val | Gln | Glu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |
| Arg | Gly | Ser | Ile | Leu | Asp | Ala | Met | Arg | Pro | Gln | Gln | Leu | His | Ala |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |
| Glu | Ile | Thr | Ser | Ser | Gly | Phe | Arg | Leu | Ala | Trp | Pro | Pro | Leu | Leu |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     | 240 |
| Ala | Asp | Ser | Gly | Tyr | Tyr | Val | Leu | Glu | Leu | Val | Pro | Ser | Ala | Gln |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |
| Gly | Ala | Ala | Arg | Arg | Gln | Gln | Leu | Pro | Gly | Asn | Ala | Thr | Asp | Trp |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Trp | Ala | Gly | Leu | Asp | Pro | Asp | Thr | Asp | Tyr | Asp | Val | Ala | Leu | Val |
|     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Glu | Ser | Asn | Val | Arg | Leu | Leu | Arg | Pro | Gln | Ile |     |     |     |     |
|     | 290 |     |     |     | 295 |     |     |     |     |     |     |     |     |     |

<210> 4691  
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 <212> DNA  
 <213> Homo sapiens

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2280  
gaggatcact tgagtccagg aggttaaggc tccagaaagc tagtatcatc cacggactct  
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&lt;210&gt; 4692

<211> 383  
 <212> PRT  
 <213> Homo sapiens

<400> 4692

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Asp | Leu | Lys | Ala | Lys | Met | Pro | Asp | Asp | His | Ala | Arg | Lys | Ile | Leu | 1   | 5   | 10  | 15  |
| Leu | Ser | Arg | Ile | Asn | Asn | Tyr | Thr | Ile | Pro | Glu | Glu | Glu | Ile | Gly | Ser | 20  | 25  | 30  |     |
| Phe | Leu | Phe | His | Ala | Ile | Asn | Lys | Pro | Asn | Ala | Pro | Ile | Trp | Leu | Ile | 35  | 40  | 45  |     |
| Leu | Asn | Glu | Ala | Gly | Leu | Tyr | Trp | Arg | Ala | Val | Gly | Asn | Ser | Thr | Phe | 50  | 55  | 60  |     |
| Ala | Ile | Ala | Cys | Leu | Gln | Arg | Ala | Leu | Asn | Leu | Ala | Pro | Leu | Gln | Tyr | 65  | 70  | 75  | 80  |
| Gln | Asp | Val | Pro | Leu | Val | Asn | Leu | Ala | Asn | Leu | Leu | Ile | His | Tyr | Gly | 85  | 90  | 95  |     |
| Leu | His | Leu | Asp | Ala | Thr | Lys | Leu | Leu | Leu | Gln | Ala | Leu | Ala | Ile | Asn | 100 | 105 | 110 |     |
| Ser | Ser | Glu | Pro | Leu | Thr | Phe | Leu | Ser | Leu | Gly | Asn | Ala | Tyr | Leu | Ala | 115 | 120 | 125 |     |
| Leu | Lys | Asn | Ile | Ser | Gly | Ala | Leu | Glu | Ala | Phe | Arg | Gln | Ala | Leu | Lys | 130 | 135 | 140 |     |
| Leu | Thr | Thr | Lys | Cys | Pro | Glu | Cys | Glu | Asn | Ser | Leu | Lys | Leu | Ile | Arg | 145 | 150 | 155 | 160 |
| Cys | Met | Gln | Phe | Tyr | Pro | Phe | Leu | Tyr | Asn | Ile | Thr | Ser | Ser | Val | Cys | 165 | 170 | 175 |     |
| Ser | Gly | Asn | Cys | His | Glu | Lys | Thr | Leu | Asp | Asn | Ser | His | Asp | Lys | Gln | 180 | 185 | 190 |     |
| Lys | Tyr | Phe | Asp | Asn | Ser | Gln | Ser | Leu | Asp | Ala | Ala | Glu | Glu | Glu | Pro | 195 | 200 | 205 |     |
| Ser | Glu | Arg | Gly | Thr | Glu | Glu | Asp | Pro | Val | Phe | Ser | Val | Glu | Asn | Ser | 210 | 215 | 220 |     |
| Gly | Arg | Asp | Ser | Asp | Ala | Leu | Arg | Leu | Glu | Ser | Thr | Val | Val | Glu | Glu | 225 | 230 | 235 | 240 |
| Ser | Asn | Gly | Ser | Asp | Glu | Met | Glu | Asn | Ser | Asp | Glu | Thr | Lys | Met | Ser | 245 | 250 | 255 |     |
| Glu | Glu | Ile | Leu | Ala | Leu | Val | Asp | Glu | Phe | Gln | Gln | Ala | Trp | Pro | Leu | 260 | 265 | 270 |     |
| Glu | Gly | Phe | Gly | Gly | Ala | Leu | Glu | Met | Lys | Gly | Arg | Arg | Leu | Asp | Leu | 275 | 280 | 285 |     |
| Gln | Gly | Ile | Arg | Val | Leu | Lys | Lys | Gly | Pro | Gln | Asp | Gly | Val | Ala | Arg | 290 | 295 | 300 |     |
| Ser | Ser | Cys | Tyr | Gly | Asp | Cys | Arg | Ser | Glu | Asp | Asp | Glu | Ala | Thr | Glu | 305 | 310 | 315 | 320 |
| Trp | Ile | Thr | Phe | Gln | Val | Lys | Arg | Val | Lys | Lys | Pro | Lys | Gly | Asp | His | 325 | 330 | 335 |     |
| Lys | Lys | Thr | Pro | Gly | Lys | Lys | Val | Glu | Thr | Gly | Gln | Ile | Glu | Asn | Gly | 340 | 345 | 350 |     |
| His | Arg | Tyr | Gln | Ala | Asn | Leu | Glu | Ile | Thr | Gly | Pro | Lys | Val | Ala | Ser | 355 | 360 | 365 |     |
| Pro | Gly | Pro | Gln | Gly | Leu | Leu | Asp | Trp | Lys | Thr | Arg | Lys | Val | Pro |     | 370 | 375 | 380 |     |

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 <212> DNA  
 <213> Homo sapiens

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<210> 4694  
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 <213> Homo sapiens

<400> 4694  
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 Asn Ser Gly Val Gly Gln Asp Gly Ser Leu Leu Ser Ser Pro Phe Leu  
 35 40 45  
 Lys Gly Phe Leu Ala Gly Tyr Val Val Ala Lys Leu Arg Ala Ser Ala  
 50 55 60  
 Val Leu Gly Phe Ala Val Gly Thr Cys Thr Gly Ile Tyr Ala Ala Gln  
 65 70 75 80  
 Ala Tyr Ala Val Pro Asn Val Glu Lys Thr Leu Arg Asp Tyr Leu Gln  
 85 90 95  
 Leu Leu Arg Lys Gly Pro Asp



100

&lt;210&gt; 4695

&lt;211&gt; 2209

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4695

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&lt;210&gt; 4696

&lt;211&gt; 302

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4696

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Pro | Phe | Phe | Pro | Phe | Gly | Leu | Pro | His | Ser | Gly | Ile | Ala | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Arg | Gly | Val | Lys | Ile | Ala | Arg | Ala | Leu | Val | Gly | Thr | Phe | Met | Ser | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Glu | Met | Pro | Gly | Ile | Ser | Leu | Thr | Leu | Leu | Leu | Val | Asp | Glu | Pro |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Leu | Lys | Leu | Ile | Asp | Ala | Glu | Thr | Thr | Ala | Ala | Ala | Trp | Pro | Asn |
|     |     | 50  |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Val | Ala | Ala | Val | Ser | Ile | Thr | Gly | Arg | Lys | Arg | Ser | Arg | Val | Ala | Pro |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Ala | Glu | Pro | Gln | Glu | Ala | Pro | Asp | Ser | Thr | Ala | Ala | Xaa | Glu | Ala | Gln |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Pro | Arg | Ser | Xaa | Met | Ala | Leu | Val | Leu | Glu | Arg | Val | Cys | Ser | Thr | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     | 110 |     |     |     |
| Leu | Gly | Leu | Glu | Glu | His | Leu | Asn | Ala | Leu | Asp | Arg | Ala | Ala | Gly | Asp |
|     |     | 115 |     |     |     |     | 120 |     |     |     | 125 |     |     |     |     |
| Gly | Asp | Cys | Gly | Thr | Thr | His | Ser | Arg | Ala | Ala | Arg | Ala | Ile | Gln | Glu |
|     | 130 |     |     |     |     | 135 |     |     | 140 |     |     |     |     |     |     |
| Trp | Leu | Lys | Glu | Gly | Pro | Pro | Pro | Ala | Ser | Pro | Ala | Gln | Leu | Leu | Ser |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 145 |     | 150 |     | 155 |     | 160 |     |     |     |     |     |     |     |     |     |
| Lys | Leu | Ser | Val | Leu | Leu | Glu | Lys | Met | Gly | Gly | Ser | Ser | Gly | Ala |     |
|     |     | 165 |     | 170 |     | 175 |     |     |     |     |     |     |     |     |     |
| Leu | Tyr | Gly | Leu | Phe | Leu | Thr | Ala | Ala | Ala | Gln | Pro | Leu | Lys | Ala | Lys |
|     |     | 180 |     | 185 |     | 190 |     |     |     |     |     |     |     |     |     |
| Thr | Ser | Leu | Pro | Ala | Trp | Ser | Ala | Ala | Met | Asp | Ala | Gly | Leu | Glu | Ala |
|     |     | 195 |     | 200 |     | 205 |     |     |     |     |     |     |     |     |     |
| Met | Gln | Lys | Tyr | Gly | Lys | Ala | Ala | Pro | Gly | Asp | Arg | Thr | Met | Leu | Asp |
|     |     | 210 |     | 215 |     | 220 |     |     |     |     |     |     |     |     |     |
| Ser | Leu | Trp | Ala | Ala | Glu | Gln | Glu | Leu | Gln | Ala | Trp | Lys | Ser | Pro | Gly |
| 225 |     |     |     | 230 |     | 235 |     |     |     |     |     |     |     | 240 |     |
| Ala | Asp | Leu | Leu | Gln | Val | Leu | Thr | Lys | Ala | Val | Lys | Ser | Ala | Glu | Ala |
|     |     | 245 |     | 250 |     | 255 |     |     |     |     |     |     |     |     |     |
| Ala | Ala | Glu | Ala | Thr | Lys | Asn | Met | Glu | Ala | Gly | Ala | Gly | Arg | Ala | Ser |
|     |     | 260 |     | 265 |     | 270 |     |     |     |     |     |     |     |     |     |
| Tyr | Ile | Ser | Ser | Ala | Arg | Leu | Glu | Gln | Pro | Asp | Pro | Gly | Ala | Val | Ala |
|     |     | 275 |     | 280 |     | 285 |     |     |     |     |     |     |     |     |     |
| Ala | Ala | Ala | Ile | Leu | Arg | Ala | Ile | Leu | Glu | Val | Leu | Gln | Ser |     |     |
|     |     | 290 |     | 295 |     | 300 |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4697

&lt;211&gt; 1047

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4697

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 180  
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 240  
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 300  
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 420  
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 840

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 <211> 182  
 <212> PRT  
 <213> Homo sapiens

<400> 4698  
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 35 40 45  
 Pro Ser Cys Leu Pro Gly Ile Ser Ile Asn Ser Glu Gln Leu Thr Arg  
 50 55 60  
 Ala Gln Cys Val Thr Val Lys Glu Lys Leu Leu Glu Gln Ala Glu Ser  
 65 70 75 80  
 Leu Leu Ser Glu Pro Met Val His Glu Leu Val Leu Trp Ile Gln Gln  
 85 90 95  
 Asn Leu Arg His Ile Leu Ser Gln Pro Glu Thr Gly Ser Gly Ser Glu  
 100 105 110  
 Lys Cys Thr Phe Ser Thr Ser Thr Thr Met Asp Asp Gly Leu Trp Ile  
 115 120 125  
 Thr Leu Leu His Leu Asp His Met Arg Ala Lys Thr Lys Tyr Val Lys  
 130 135 140  
 Ile Val Glu Lys Trp Ala Ser Asp Leu Arg Leu Thr Gly Arg Leu Met  
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 Phe Met Gly Lys Ile Ile Leu Ile Leu Leu Gln Gly Asp Arg Asn Asn  
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 Leu Lys Val Pro Lys Ser  
 180

<210> 4699  
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 <212> DNA  
 <213> Homo sapiens

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 180  
 ataacatagt tcaccacaat gggacccccccc cccctttttt ctcaccctac agttagtaat  
 240

attacaatta aaataactat attcttctat attttttctg ttaaaatcat ctcataaatt  
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780  
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1260  
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1320  
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1380  
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1440  
t  
1441

&lt;210&gt; 4700

&lt;211&gt; 116

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4700

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Thr | Ile | Phe | Gly | Asn | Val | Thr | Glu | Tyr | Gln | Arg | Leu | Gln | Leu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     | 15  |     |     |     |     |
| Ser | Thr | Arg | Gly | Gln | Ser | Lys | Thr | Gly | Trp | Lys | Leu | Pro | Val | Thr | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     | 30  |     |     |     |     |
| Ile | Cys | Cys | Pro | Arg | His | Pro | Leu | Met | Arg | Leu | Lys | Leu | Gly | Pro | Ser |

<400> 4702  
Arg Gln Gly Phe Thr Leu Thr Arg Met Ile Ser Ile Ser Gly Pro Arg

```

      1           5           10           15
Asp Pro Pro Thr Ser Ala Ser Glu Asn Ala Gly Ile Thr Gly Leu Ser
      20           25           30
His Xaa Pro Pro Gly His Phe Phe Leu Glu Thr Arg Ser Tyr Ser Leu
      35           40           45
Ala Lys Asn Gly Val Gln Trp Cys Asn Val Gly Ser Leu Gln Pro Lys
      50           55           60
Pro Pro Gly Leu Lys
65

```

&lt;210&gt; 4703

&lt;211&gt; 513

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4703

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480
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513

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&lt;210&gt; 4704

&lt;211&gt; 112

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4704

```

Met Ala Ala Pro Glu Gln Pro Leu Ala Ile Ser Arg Gly Cys Thr Ser
      1           5           10           15
Ser Ser Ser Leu Ser Pro Pro Arg Ala Asp Arg Thr Leu Leu Val Arg
      20           25           30
His Leu Pro Ala Glu Leu Thr Ala Glu Glu Lys Glu Asp Leu Leu Lys
      35           40           45
Tyr Phe Gly Ala Gln Ser Val Arg Val Leu Ser Asp Lys Gly Arg Leu
      50           55           60
Lys His Thr Ala Phe Ala Thr Phe Pro Asn Glu Lys Ala Ala Ile Lys
      65           70           75           80
Ala Leu Thr Arg Leu His Gln Leu Lys Leu Leu Gly His Thr Leu Val
      85           90           95
Val Glu Phe Ala Lys Glu Gln Asp Arg Val His Ser Pro Cys Pro Thr

```

100

105

110

&lt;210&gt; 4705

&lt;211&gt; 569

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4705

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 180  
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 240  
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 300  
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 acgtcacaca ttgttttttg gcttgttctt ttgaagtttt tacgacttgt catgagtctc  
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 569

&lt;210&gt; 4706

&lt;211&gt; 154

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4706

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Thr | Arg | Pro | Lys | Glu | Gly | Trp | Lys | Gly | Pro | Arg | Ser | Asp | Asn | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Lys | Ser | Asn | Lys | Ile | Phe | Val | Gly | Gly | Ile | Pro | His | Asn | Cys | Gly | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Glu | Leu | Arg | Glu | Tyr | Phe | Lys | Lys | Phe | Gly | Val | Val | Thr | Glu | Val |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Met | Ile | Tyr | Asp | Ala | Glu | Lys | Gln | Arg | Pro | Arg | Gly | Lys | Gly | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ser | Ser | Leu | Thr | Ser | Ala | Phe | Ser | Leu | Leu | Leu | Pro | Gln | Met | Ala | Asn |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Tyr | Leu | Thr | Arg | Gln | Ala | His | Thr | Gly | Gly | Cys | Ser | Lys | Gln | Pro |     |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Gln | Glu | Gly | Thr | Ile | Trp | Arg | Gln | Met | Thr | Lys | Thr | Trp | Ala | Pro | His |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Val | His | Pro | Ile | Gln | Pro | Val | Cys | Ala | Ser | Arg | Gly | Gln | Thr | Ser | His |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ile | Val | Phe | Trp | Leu | Val | Leu | Leu | Lys | Phe | Leu | Arg | Leu | Val | Met | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Leu | Gly | Leu | Ala | Ser | Val | Phe | His | Cys | Pro |     |     |     |     |     |     |



145

150

&lt;210&gt; 4707

&lt;211&gt; 748

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4707

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 120  
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 180  
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 240  
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 300  
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 748

&lt;210&gt; 4708

&lt;211&gt; 128

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4708

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ala | Pro | Glu | Gln | Pro | Leu | Ala | Ile | Ser | Arg | Gly | Cys | Thr | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Ser | Ser | Leu | Ser | Pro | Pro | Arg | Gly | Asp | Arg | Thr | Leu | Leu | Val | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| His | Leu | Pro | Ala | Glu | Leu | Thr | Ala | Glu | Glu | Lys | Glu | Asp | Leu | Leu | Lys |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Tyr | Phe | Gly | Ala | Gln | Ser | Val | Arg | Val | Leu | Ser | Asp | Lys | Gly | Arg | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Lys | His | Thr | Ala | Phe | Ala | Thr | Phe | Pro | Asn | Glu | Lys | Ala | Ala | Ile | Lys |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Ala | Leu | Thr | Arg | Leu | His | Gln | Leu | Lys | Leu | Leu | Gly | His | Thr | Leu | Val |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Val | Glu | Phe | Ala | Lys | Glu | Gln | Asp | Arg | Val | His | Ser | Pro | Cys | Pro | Thr |

|   |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|
|   | 100 |     | 105 |     | 110 |
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| 115   |     | 120 |     | 125 |     |

<210> 4709  
 <211> 1351  
 <212> DNA  
 <213> Homo sapiens

<400> 4709  
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 1200  
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1351

<210> 4710

<211> 304

<212> PRT

<213> Homo sapiens

<400> 4710

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asn | Asn | Ser | Gly | Ala | Asp | Glu | Ile | Gly | Lys | Leu | Phe | Val | Gly | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Asp | Trp | Ser | Thr | Thr | Gln | Glu | Thr | Leu | Arg | Ser | Tyr | Phe | Ser | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Tyr | Gly | Glu | Val | Val | Asp | Cys | Val | Ile | Met | Lys | Asp | Lys | Thr | Thr | Asn |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Gln | Ser | Arg | Gly | Phe | Gly | Phe | Val | Lys | Phe | Lys | Asp | Pro | Asn | Cys | Val |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Thr | Val | Leu | Ala | Ser | Arg | Pro | His | Thr | Leu | Asp | Gly | Arg | Asn | Ile |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Asp | Pro | Lys | Pro | Cys | Thr | Pro | Arg | Gly | Met | Gln | Pro | Glu | Arg | Thr | Arg |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Pro | Lys | Glu | Gly | Trp | Gln | Lys | Gly | Pro | Arg | Ser | Asp | Asn | Ser | Lys | Ser |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn | Lys | Ile | Phe | Val | Gly | Gly | Ile | Pro | His | Asn | Cys | Gly | Glu | Thr | Glu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Leu | Arg | Glu | Tyr | Phe | Lys | Lys | Phe | Gly | Val | Val | Thr | Glu | Val | Val | Met |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ile | Tyr | Asp | Ala | Glu | Lys | Gln | Arg | Pro | Arg | Gly | Phe | Gly | Phe | Ile | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Phe | Glu | Asp | Glu | Gln | Ser | Val | Asp | Gln | Ala | Val | Asn | Met | His | Phe | His |
|     |     |     |     | 165 |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Asp | Ile | Met | Gly | Lys | Lys | Val | Glu | Val | Lys | Arg | Ala | Glu | Pro | Arg | Asp |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Ser | Lys | Ser | Gln | Ala | Pro | Gly | Gln | Pro | Gly | Ala | Ser | Gln | Trp | Gly | Ser |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Arg | Val | Val | Pro | Asn | Ala | Ala | Asn | Gly | Trp | Ala | Gly | Gln | Pro | Pro | Pro |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Thr | Trp | Gln | Gln | Gly | Tyr | Gly | Pro | Gln | Gly | Met | Trp | Val | Pro | Ala | Gly |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Gln | Ala | Ile | Gly | Gly | Tyr | Gly | Pro | Pro | Pro | Ala | Gly | Arg | Gly | Ala | Pro |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     | 255 |     |     |
| Pro | Pro | Pro | Pro | Pro | Phe | Thr | Ser | Tyr | Ile | Val | Ser | Thr | Pro | Pro | Gly |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Gly | Phe | Pro | Pro | Pro | Gln | Gly | Phe | Pro | Gln | Gly | Tyr | Gly | Ala | Pro | Pro |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Gln | Phe | Ser | Phe | Gly | Tyr | Gly | Pro | Pro | Pro | Pro | Pro | Pro | Gly | Ser | Arg |
|     | 290 |     |     |     |     | 295 |     |     |     |     |     | 300 |     |     |     |

<210> 4711

<211> 2061

<212> DNA

<213> Homo sapiens

<400> 4711

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240  
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300  
aacgctgggg agcagccagg ccagggtggcg ggcgcagact tcgagagcga ggacgagggc  
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420  
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720  
aaaacttgac cttcaaaaaa atttgttttt cagaatagaa cacaatagga cagtgactgc  
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1320  
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 2040  
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 2061

&lt;210&gt; 4712

&lt;211&gt; 187

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4712

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Glu | Met | Ala | Glu | Leu | Ser | Glu | Leu | Tyr | Glu | Glu | Ser | Ser | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Gln | Met | Asp | Val | Met | Pro | Gly | Glu | Gly | Asp | Leu | Pro | Gln | Met | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Val | Gly | Ser | Gly | Ser | Arg | Glu | Leu | Ser | Leu | Arg | Pro | Ser | Arg | Ser | Gly |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ala | Gln | Gln | Leu | Glu | Glu | Glu | Gly | Pro | Met | Glu | Glu | Glu | Glu | Ala | Gln |
|     |     |     | 50  |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Pro | Met | Ala | Ala | Pro | Glu | Gly | Lys | Arg | Ser | Leu | Ala | Asn | Gly | Pro | Asn |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Ala | Gly | Glu | Gln | Pro | Gly | Gln | Val | Ala | Gly | Ala | Asp | Phe | Glu | Ser | Glu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Asp | Glu | Gly | Glu | Glu | Phe | Asp | Asp | Trp | Glu | Asp | Asp | Tyr | Asp | Tyr | Pro |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Glu | Glu | Glu | Gln | Leu | Ser | Gly | Ala | Gly | Tyr | Arg | Val | Ser | Ala | Ala | Leu |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Glu | Glu | Ala | Asp | Lys | Met | Phe | Leu | Arg | Thr | Arg | Glu | Pro | Ala | Leu | Asp |
|     |     |     | 130 |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gly | Gly | Phe | Gln | Met | His | Tyr | Glu | Lys | Thr | Pro | Phe | Asp | Gln | Leu | Ala |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |
| Phe | Ile | Glu | Glu | Leu | Phe | Ser | Leu | Met | Val | Val | Asn | Arg | Leu | Thr | Glu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Glu | Leu | Gly | Cys | Asp | Glu | Ile | Ile | Asp | Arg | Glu |     |     |     |     |     |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     |     |     |     |

&lt;210&gt; 4713

&lt;211&gt; 1324

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4713

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120  
ctctcacgga acgcccctct ctcacacaga acccccctct ctcaccgaat cccatctcag  
180  
tcttgagttt tccctcgact ctggtgcttc cgctcacatc ttagtgagtc cccagggcct  
240  
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1324

&lt;210&gt; 4714

&lt;211&gt; 145

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4714

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Val Gln Val Val Gly Arg Ala Phe Ala Arg Ala Leu Arg Gln Glu Phe
      35           40           45
Ala Ala Ser Arg Ala Ala Ala Asp Ala Arg Gly Arg Ala Gly His Arg
      50           55           60
Ser Ala Ala Ala Ser Asn Leu Ser Gly Leu Ser Leu Gln Glu Ala Gln
      65           70           75           80
Gln Ile Leu Asn Val Ser Lys Leu Ser Pro Glu Glu Val Gln Lys Asn
      85           90           95
Tyr Glu His Leu Phe Lys Val Asn Asp Lys Ser Val Gly Gly Ser Phe
      100          105          110
Tyr Leu Gln Ser Lys Val Val Arg Ala Lys Glu Arg Leu Asp Glu Glu
      115          120          125
Leu Lys Ile Gln Ala Gln Glu Asp Arg Glu Lys Gly Gln Met Pro His
      130          135          140
Thr
145

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<210> 4715  
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 <212> DNA  
 <213> Homo sapiens

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300
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720
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840

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 960  
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 1200  
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 1260  
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 1380  
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 1920  
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 1980  
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 2040  
 agaagatatt c  
 2051

&lt;210&gt; 4716

&lt;211&gt; 239

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4716

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ser | Arg | Gln | Arg | Pro | Arg | Arg | Lys | Glu | Asn | Gly | Ile | Thr | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Leu | Arg | Val | Thr | Leu | Lys | Gln | Asp | Thr | His | Gly | Val | Gly | His | Asp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Pro | Ala | Lys | Glu | Phe | Thr | Asn | His | Trp | Trp | Asn | Glu | Leu | Phe | Asn | Lys |



|   |     |     |
|---|-----|-----|
| 35  | 40  | 45  |
| Thr Ala Asn Leu Val Val Glu Thr Gly Gln Asp Gly Val Gln Ile     |     |     |
| 50  | 55  | 60  |
| Arg Ser Leu Ser Lys Glu Thr Thr Arg Tyr Asn His Pro Lys Pro Asn |     |     |
| 65  | 70  | 75  |
| Leu Leu Tyr Gln Lys Phe Val Lys Met Ala Thr Leu Thr Ser Gly Gly |     |     |
| 85  | 90  | 95  |
| Glu Lys Pro Asn Lys Asp Leu Glu Ser Cys Ser Asp Asp Asp Asn Gln |     |     |
| 100   | 105 | 110 |
| Gly Ser Lys Ser Pro Lys Ile Leu Thr Asp Glu Met Leu Leu Gln Ala |     |     |
| 115   | 120 | 125 |
| Cys Glu Gly Arg Thr Ala His Lys Ala Ala Arg Leu Gly Ile Thr Met |     |     |
| 130   | 135 | 140 |
| Lys Ala Lys Leu Ala Arg Leu Glu Ala Gln Glu Gln Ala Phe Leu Ala |     |     |
| 145   | 150 | 155 |
| Arg Leu Lys Gly Gln Asp Pro Gly Ala Pro Gln Leu Gln Ser Glu Ser |     |     |
| 165   | 170 | 175 |
| Lys Pro Pro Lys Lys Lys Lys Lys Arg Arg Gln Lys Glu Glu Glu     |     |     |
| 180   | 185 | 190 |
| Glu Ala Thr Ala Ser Glu Arg Asn Asp Ala Asp Glu Lys His Pro Glu |     |     |
| 195   | 200 | 205 |
| His Ala Glu Gln Asn Ile Arg Lys Ser Lys Lys Lys Lys Arg Arg His |     |     |
| 210   | 215 | 220 |
| Gln Glu Gly Lys Val Ser Asp Glu Arg Glu Gly Thr Thr Lys Glu     |     |     |
| 225   | 230 | 235 |

&lt;210&gt; 4717

&lt;211&gt; 2753

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4717

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120
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180
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660

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 2460  
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 2520  
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 2580  
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 2640  
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<210> 4718

<211> 259

<212> PRT

<213> Homo sapiens

<400> 4718

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Arg | Ala | Ala | Ser | Pro | Pro | Ala | Ser | Ala | Ser | Asp | Leu | Ile | Glu | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Gln | Lys | Arg | Gly | Arg | Arg | Glu | His | Lys | Ala | Leu | Ile | Lys | Gln | Asp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asn | Leu | Asp | Ala | Phe | Asn | Glu | Arg | Asp | Pro | Tyr | Lys | Ala | Asp | Asp | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Arg | Glu | Glu | Glu | Glu | Glu | Asn | Asp | Asp | Asp | Asn | Ser | Leu | Glu | Gly | Glu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Thr | Phe | Pro | Leu | Glu | Arg | Asp | Glu | Val | Met | Pro | Pro | Pro | Leu | Gln | His |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Pro | Gln | Thr | Asp | Arg | Leu | Thr | Cys | Pro | Lys | Gly | Leu | Pro | Trp | Ala | Pro |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Lys | Val | Arg | Glu | Lys | Asp | Ile | Glu | Met | Phe | Leu | Glu | Ser | Ser | Arg | Ser |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Lys | Phe | Ile | Gly | Tyr | Thr | Leu | Gly | Ser | Asp | Thr | Asn | Thr | Val | Val | Gly |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Leu | Pro | Arg | Pro | Ile | His | Glu | Ser | Ile | Lys | Thr | Leu | Lys | Gln | His | Lys |
|     | 130 |     |     |     | 135 |     |     |     | 140 |     |     |     |     |     |     |
| Tyr | Thr | Ser | Ile | Ala | Glu | Val | Gln | Ala | Gln | Met | Lys | Glu | Glu | Tyr | Leu |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Arg | Ser | Pro | Leu | Ser | Gly | Gly | Glu | Glu | Glu | Val | Glu | Gln | Val | Pro | Ala |
|     |     |     | 165 |     |     |     | 170 |     |     |     |     |     | 175 |     |     |
| Glu | Thr | Leu | Tyr | Gln | Gly | Leu | Leu | Pro | Ser | Leu | Pro | Gln | Tyr | Met | Ile |
|     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| Ala | Leu | Leu | Lys | Ile | Leu | Leu | Ala | Ala | Ala | Pro | Thr | Ser | Lys | Ala | Lys |
|     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| Thr | Asp | Ser | Ile | Asn | Ile | Leu | Ala | Asp | Val | Leu | Pro | Glu | Glu | Met | Pro |
|     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |
| Thr | Thr | Val | Leu | Gln | Ser | Met | Lys | Leu | Gly | Val | Asp | Val | Asn | Arg | His |
| 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |     |
| Lys | Glu | Val | Ile | Val | Lys | Ala | Ile | Ser | Ala | Ala | Leu | Leu | Leu | Leu | Leu |

Lys His Phe

245

250

255

<210> 4719  
 <211> 589  
 <212> DNA  
 <213> Homo sapiens

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 120  
 cggctgggtgg actatttggga agggatccgg aagaattttg atgaggctgc caaggtgttg  
 180  
 aagtttaact gtgaagagaa ccagcacagt gatagctgct acaaactggg ggcctactat  
 240  
 gtgactggaa aaggtggtct gacccaggac ctgaaagctg ccgccagggtg ctttttgatg  
 300  
 gcgtgtgaga agcctggaaa gaagtcaata gcagcatgtc acaacgttgg cctcctggca  
 360  
 catgatggac aggttaatga ggatggccag cctgacttgg gaaaggccag ggactactac  
 420  
 acaagggcct gtgatgggtgg ctatacttcc agttgcttca acctcagtgc catgttcctg  
 480  
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<210> 4720  
 <211> 196  
 <212> PRT  
 <213> Homo sapiens

<400> 4720  
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 Glu Lys Asp Pro Asp Gly Cys Tyr Arg Leu Val Asp Tyr Leu Glu Gly  
 35 40 45  
 Ile Arg Lys Asn Phe Asp Glu Ala Ala Lys Val Leu Lys Phe Asn Cys  
 50 55 60  
 Glu Glu Asn Gln His Ser Asp Ser Cys Tyr Lys Leu Gly Ala Tyr Tyr  
 65 70 75 80  
 Val Thr Gly Lys Gly Gly Leu Thr Gln Asp Leu Lys Ala Ala Ala Arg  
 85 90 95  
 Cys Phe Leu Met Ala Cys Glu Lys Pro Gly Lys Lys Ser Ile Ala Ala  
 100 105 110  
 Cys His Asn Val Gly Leu Leu Ala His Asp Gly Gln Val Asn Glu Asp  
 115 120 125  
 Gly Gln Pro Asp Leu Gly Lys Ala Arg Asp Tyr Tyr Thr Arg Ala Cys

|   |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|
| 130   |     | 135 |     | 140 |     |
| Asp Gly Gly Tyr Thr Ser Ser Cys Phe Asn Leu Ser Ala Met Phe Leu |     |     |     |     |     |
| 145   |     | 150 |     | 155 | 160 |
| Gln Gly Ala Pro Gly Phe Pro Lys Asp Met Asp Leu Ala Cys Lys Tyr |     |     |     |     |     |
|   | 165 |     | 170 |     | 175 |
| Ser Met Lys Ala Cys Asp Leu Gly His Ile Trp Ala Cys Ala Asn Ala |     |     |     |     |     |
|   | 180 |     | 185 |     | 190 |
| Ser Arg Met Tyr   |     |     |     |     |     |
| 195   |     |     |     |     |     |

&lt;210&gt; 4721

&lt;211&gt; 1385

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4721

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180
gttgaagagc ctagcgacga ggagccggct ttgagcagct ctgaggatga agtggatgtg
240
cttttacatg gaactcctga ccaaaaacga aaactcatca gagaatgtct taccggagaa
300
agtgaatcat ctagtgaaga tgaatttgaa aaggagatgg aagctgaatt aaattctacc
360
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420
aaagttgcaa cagctccgac aaggctactac gatgatatat attttgattc tgattccgag
480
gatgaagaca gagcagtaca ggtgaccaag aaaaaaaga agaaacaaca caagattcca
540
acaaatgacg aattactgta tgatcctgaa aaagataaca gagatcaggc ctgggttgat
600
gcacagagaa ggggttacca tgggttggga ccacagagat cacgtcaaca acagcctgtt
660
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720
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780
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840
aagaagatga ggtctaaccg ggaagatgct gctgagaagg cagagacaga tgtggaagaa
900
atctatcacc cagtcagtgt cactgaatgt tccactgaag tggcagtcta cgacaaggat
960
gaagtctttc attttttcaa tgttttagca agccattcct aaacagccca actggcattt
1020
aattaccaa tactgtatat aaggcaaata tggacagtta ctttcctctt gcctgttcat
1080
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1140

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 1260  
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 1385

<210> 4722  
 <211> 285  
 <212> PRT  
 <213> Homo sapiens

<400> 4722  
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 Ser Asp Glu Glu Pro Ala Leu Ser Ser Glu Asp Glu Val Asp Val  
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 35 40 45  
 Leu Thr Gly Glu Ser Glu Ser Ser Ser Glu Asp Glu Phe Glu Lys Glu  
 50 55 60  
 Met Glu Ala Glu Leu Asn Ser Thr Met Lys Thr Met Glu Asp Lys Leu  
 65 70 75 80  
 Ser Ser Leu Gly Thr Gly Ser Ser Ser Gly Asn Gly Lys Val Ala Thr  
 85 90 95  
 Ala Pro Thr Arg Tyr Tyr Asp Asp Ile Tyr Phe Asp Ser Asp Ser Glu  
 100 105 110  
 Asp Glu Asp Arg Ala Val Gln Val Thr Lys Lys Lys Lys Lys Lys Gln  
 115 120 125  
 His Lys Ile Pro Thr Asn Asp Glu Leu Leu Tyr Asp Pro Glu Lys Asp  
 130 135 140  
 Asn Arg Asp Gln Ala Trp Val Asp Ala Gln Arg Arg Gly Tyr His Gly  
 145 150 155 160  
 Leu Gly Pro Gln Arg Ser Arg Gln Gln Gln Pro Val Pro Asn Ser Asp  
 165 170 175  
 Ala Val Leu Asn Cys Pro Ala Cys Met Thr Thr Leu Cys Leu Asp Cys  
 180 185 190  
 Gln Arg His Glu Ser Tyr Lys Thr Gln Tyr Arg Ala Met Phe Val Met  
 195 200 205  
 Asn Cys Ser Ile Asn Lys Glu Glu Val Leu Arg Tyr Lys Ala Ser Glu  
 210 215 220  
 Asn Arg Lys Lys Arg Arg Val His Lys Lys Met Arg Ser Asn Arg Glu  
 225 230 235 240  
 Asp Ala Ala Glu Lys Ala Glu Thr Asp Val Glu Glu Ile Tyr His Pro  
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<210> 4723  
<211> 1213  
<212> DNA  
<213> Homo sapiens

<400> 4723  
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180  
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240  
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300  
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360  
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720  
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<210> 4724  
<211> 54  
<212> PRT  
<213> Homo sapiens

&lt;400&gt; 4724

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 1           5           10           15
Val Gly Val Pro Val Gly Trp Gly Gly Glu Trp Gly Glu Pro Thr Pro
      20           25           30
Gly Pro Pro Ser Pro Phe Pro Arg Gln Ser Pro Phe Gly Leu Asn Pro
      35           40           45
Phe Leu Pro Ala Gly Asp
      50

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&lt;210&gt; 4725

&lt;211&gt; 366

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4725

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120
tgcgcatgtg cacgtgtgta tatgcatatg tgcacagggtg cctgtgcctg tgtgaacaca
180
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240
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360
acgcgt
366

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&lt;210&gt; 4726

&lt;211&gt; 122

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4726

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Xaa Phe Leu Glu Gly Glu Leu Gly Arg Ser Arg Arg Thr Pro Ala Gly
 1           5           10           15
Gly Arg Gly Ala Met Leu Ala Ile Asp Thr Ala Ser Asp Ile Leu Ala
      20           25           30
His Val His Val Tyr Ser Arg Leu Cys Ala Cys Ala Arg Val Tyr Met
      35           40           45
His Met Cys Thr Gly Ala Cys Ala Cys Val Asn Thr Cys Ser His Val
      50           55           60
Cys Thr Cys Xaa Ser Cys Pro Cys Xaa Tyr Val His Thr Cys Leu Cys
      65           70           75           80
Met His Ala Cys Ile Ala Val Cys Pro Tyr Pro His Val Arg Ile His
      85           90           95
Met Arg Leu Cys Leu His Leu Cys Met His Ala Ser Val Leu Leu Arg
      100          105          110
Ala Trp Val Cys Ile Cys Ala Cys Thr Arg
      115          120

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<210> 4727  
<211> 2031  
<212> DNA  
<213> Homo sapiens

<400> 4727  
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120  
tagctgggat tacagggacc caccaccaca cccggctaata tttttttgta tttttactag  
180  
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240  
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300  
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420  
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660  
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1380  
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1440

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 1560  
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 1680  
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 1740  
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 1800  
 gggcaagccc tagcccaaga cttgcctcc ttggatcttt ccccagccg cttcttcaa  
 1860  
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 2031

&lt;210&gt; 4728

&lt;211&gt; 328

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4728

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Arg | Pro | Val | Arg | Leu | Met | Lys | Val | Phe | Val | Thr | Arg | Arg | Ile | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Glu | Gly | Arg | Val | Ala | Leu | Ala | Arg | Ala | Ala | Asp | Cys | Glu | Val | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gln | Trp | Asp | Ser | Asp | Glu | Pro | Ile | Pro | Ala | Lys | Glu | Leu | Glu | Arg | Gly |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Ala | Gly | Ala | His | Gly | Leu | Cys | Leu | Leu | Ser | Asp | His | Val | Asp |     |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Lys | Arg | Ile | Leu | Asp | Ala | Ala | Gly | Ala | Asn | Leu | Lys | Val | Ile | Ser | Thr |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Met | Ser | Val | Gly | Ile | Asp | His | Leu | Ala | Leu | Asp | Glu | Ile | Lys | Lys | Arg |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Gly | Ile | Arg | Val | Gly | Tyr | Thr | Pro | Asp | Val | Leu | Thr | Asp | Thr | Thr | Ala |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Glu | Leu | Ala | Val | Ser | Leu | Leu | Leu | Thr | Thr | Cys | Arg | Arg | Leu | Pro | Glu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ala | Ile | Glu | Glu | Val | Lys | Asn | Gly | Gly | Trp | Thr | Ser | Trp | Lys | Pro | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Trp | Leu | Cys | Gly | Tyr | Gly | Leu | Thr | Gln | Ser | Thr | Val | Gly | Ile | Ile | Gly |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Leu | Gly | Arg | Ile | Gly | Gln | Ala | Ile | Ala | Arg | Arg | Leu | Lys | Pro | Phe | Gly |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Val | Gln | Arg | Phe | Leu | Tyr | Thr | Gly | Arg | Gln | Pro | Arg | Pro | Glu | Glu | Ala |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Ala | Glu | Phe | Gln | Ala | Glu | Phe | Val | Ser | Thr | Pro | Glu | Leu | Ala | Ala | Gln |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ser | Asp | Phe | Ile | Val | Val | Ala | Cys | Ser | Leu | Thr | Pro | Ala | Thr | Glu | Gly |

|                         |                     |                     |
|-------------------------|---------------------|---------------------|
| 210                     | 215                 | 220                 |
| Leu Cys Asn Lys Asp Phe | Phe Gln Lys Met Lys | Glu Thr Ala Val Phe |
| 225                     | 230                 | 235                 |
| Ile Asn Ile Ser Arg Gly | Asp Val Val Asn Gln | Asp Asp Leu Tyr Gln |
| 245                     | 250                 | 255                 |
| Ala Leu Ala Ser Gly Lys | Ile Ala Ala Gly Leu | Asp Val Thr Ser     |
| 260                     | 265                 | 270                 |
| Pro Glu Pro Leu Pro Thr | Asn His Pro Leu Leu | Thr Leu Lys Asn Cys |
| 275                     | 280                 | 285                 |
| Val Ile Leu Pro His Ile | Gly Ser Ala Thr His | Arg Thr Arg Asn Thr |
| 290                     | 295                 | 300                 |
| Met Ser Leu Leu Ala Ala | Asn Asn Leu Leu Ala | Gly Leu Arg Gly Glu |
| 305                     | 310                 | 315                 |
| Pro Met Pro Ser Glu Leu | Lys Leu             |                     |
| 325                     |                     |                     |

<210> 4729  
 <211> 753  
 <212> DNA  
 <213> Homo sapiens

<400> 4729  
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 120  
 cctgttggtg gatttgggga aattttttgt ttgtttttta tgatttgtat ttgactgaga  
 180  
 gaaaccact gaagacgtct gcgtgagaat agagaccacc gaggccgact cgcgggccgc  
 240  
 tgcacccacc gccaaggaca aaaggagccc agcgctacta gctgcacccg attcctccca  
 300  
 gtgcttagca tgaagaaggc cgaaatggga cgattcagta tttccccgga tgaagacagc  
 360  
 agcagctaca gttccaacag cgacttcaac tactcctacc ccaccaagca agctgctctg  
 420  
 aaaagccatt atgcagatgt agatcctgaa aaccagaact ttttacttga atcgaatttg  
 480  
 ggaagaaga agtatgaaac agaatttcat ccagggtacta cttccttttg aatgtcagta  
 540  
 ttaaatctga gcaatgcgat tgtgggcagt ggaatccttg ggctttctta tgccatggct  
 600  
 aatactggaa ttgctctttt tataattctc ttgacatttg tgtcaatatt ttccctgtat  
 660  
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 753

<210> 4730  
 <211> 148  
 <212> PRT  
 <213> Homo sapiens

&lt;400&gt; 4730

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Met Lys Lys Ala Glu Met Gly Arg Phe Ser Ile Ser Pro Asp Glu Asp
 1           5           10           15
Ser Ser Ser Tyr Ser Ser Asn Ser Asp Phe Asn Tyr Ser Tyr Pro Thr
 20           25           30
Lys Gln Ala Ala Leu Lys Ser His Tyr Ala Asp Val Asp Pro Glu Asn
 35           40           45
Gln Asn Phe Leu Leu Glu Ser Asn Leu Gly Lys Lys Lys Tyr Glu Thr
 50           55           60
Glu Phe His Pro Gly Thr Thr Ser Phe Gly Met Ser Val Phe Asn Leu
 65           70           75           80
Ser Asn Ala Ile Val Gly Ser Gly Ile Leu Gly Leu Ser Tyr Ala Met
 85           90           95
Ala Asn Thr Gly Ile Ala Leu Phe Ile Ile Leu Leu Thr Phe Val Ser
 100          105          110
Ile Phe Ser Leu Tyr Ser Val His Leu Leu Leu Lys Thr Ala Asn Glu
 115          120          125
Gly Gly Ser Leu Leu Tyr Glu Gln Leu Gly Tyr Lys Ala Ser Gly Leu
 130          135          140
Val Gly Lys Leu
145

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&lt;210&gt; 4731

&lt;211&gt; 2417

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4731

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120
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180
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240
aagtaacagg acagatttct cccagcaa atcagctccac aaccaa atga atattgttct
300
ccaaggagtc aagctataga ctacacatga caacgtggcc atggctcaaa acactctctg
360
aaattacaaa attgctttct gagccaattt aaaagtcaca tgattgaatc caagctattt
420
tactttaaat ggtccttttg ctttgcacct gagacctcgc ttggccacag acgtcattcg
480
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540
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600
agtttcccaa gataactgct ttgaaaacca gtcccgttag tttctaaaag cccacctacg
660
gcaccttcct tccatcagag tctgctgccc ggggtgggctg ggaaggaggg agatacaaag
720
aagaaagtag gcatgatcac tgggtcggtt cccaagccac cctcaccctc caagaaggca
780

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900  
agcgcaggca ggggaaggtgg caccaaaacc tagtaagaac aaagcaaaac caccgtgggt  
960  
tccacactgc tctctccctt tattcctctc tttcctgccc tgtataccaa cggcataaga  
1020  
agcctgcaca aagagaaaaa tccgtatatc cagttatatc tacacggtcc aaactggggg  
1080  
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1140  
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1200  
atgaggacct gaagctgggg gttgtcttgg gaagtgaggg gggttgggaa acaccatcag  
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1320  
cctcaggeta gcctggcttt gagctttacc aagagacaga attccacata catttttttt  
1380  
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1440  
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1800  
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1860  
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1920  
aacagctctg cttatcgaca tgcaacgcagc ccaggtccc ctagatccct ggaggctcca  
1980  
gaaacaccaa gggccaaaac gccagcagcc actaacccaa acccacgtct tctcctgtc  
2040  
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2100  
tcaggcagca aacagaaatg gggaaatccc tgggtggggc aggagacaga aaggaacctc  
2160  
cagaacctcc ctgggtctct cccggccacc caaataaaag aaaactttaa tcagtaaagg  
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cttctgaata catcgtaaaa gaaaacaaag catttctgag gcgtcctttc aataaccgga  
2280  
ggaaggcggc gtcaggaggg tgcttcctcg ggtcagagca gagagtttcc agacgtcaa  
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2400

cattccaaaa agtgaat  
2417

<210> 4732  
<211> 129  
<212> PRT  
<213> Homo sapiens

<400> 4732  
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20 25 30  
Ala Arg Met Ala Gly His Val Ser Val Leu Val Ser His Phe Pro Pro  
35 40 45  
Ser Val Thr Tyr Leu Gly Ile Pro Gln Gly Leu Leu Glu Cys Asp Cys  
50 55 60  
Pro Leu Pro Ser Cys Leu Gly Tyr Lys Ser Trp Pro Tyr Val Pro Ala  
65 70 75 80  
Val Arg Gly Ser Gly Asn Pro Thr Gln Pro Pro Val Leu Gly Trp Ser  
85 90 95  
Val Ser Ile His Pro Leu Val Val Ile Glu Ala Ala Leu Pro Val Leu  
100 105 110  
Gly Glu Asp Ile Trp Ala Thr Arg Ala Pro Leu Ala Pro Ser Arg Arg  
115 120 125  
Lys

<210> 4733  
<211> 543  
<212> DNA  
<213> Homo sapiens

<400> 4733  
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120  
tccattccca ataacgtgaa gctgcagtgt gtatcctgga acaaggaaca agggttcata  
180  
gcatgcggtg gtgaagatgg attactgaaa gttttgaaat tagagacgca gacagatgat  
240  
gcaaaattga ggggccttgc agccccagc aacctttcta tgaatcagac tcttgaaggt  
300  
catagtgggt ctgttcaagt tgtaacatgg aatgagcagt atcagaagtt gactaccagt  
360  
gatgaaaacg ggcttatcat tgtgtggatg ttatataaag gctcttggat tgaggagatg  
420  
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tgg  
543

<210> 4734  
 <211> 181  
 <212> PRT  
 <213> Homo sapiens

<400> 4734  
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 Val Glu Gly Leu Ser Gly Arg Arg Asp Pro Leu Gly Asp Pro Thr Met  
 20 25 30  
 Phe Phe Tyr Leu Ser Lys Lys Ile Ser Ile Pro Asn Asn Val Lys Leu  
 35 40 45  
 Gln Cys Val Ser Trp Asn Lys Glu Gln Gly Phe Ile Ala Cys Gly Gly  
 50 55 60  
 Glu Asp Gly Leu Leu Lys Val Leu Lys Leu Glu Thr Gln Thr Asp Asp  
 65 70 75 80  
 Ala Lys Leu Arg Gly Leu Ala Ala Pro Ser Asn Leu Ser Met Asn Gln  
 85 90 95  
 Thr Leu Glu Gly His Ser Gly Ser Val Gln Val Val Thr Trp Asn Glu  
 100 105 110  
 Gln Tyr Gln Lys Leu Thr Thr Ser Asp Glu Asn Gly Leu Ile Ile Val  
 115 120 125  
 Trp Met Leu Tyr Lys Gly Ser Trp Ile Glu Glu Met Ile Asn Asn Arg  
 130 135 140  
 Asn Lys Ser Val Val Arg Ser Met Ser Trp Asn Ala Asp Gly Gln Lys  
 145 150 155 160  
 Ile Cys Ile Val Tyr Glu Asp Gly Ala Val Ile Val Gly Ser Val Asp  
 165 170 175  
 Gly Asn Arg Ile Trp  
 180

<210> 4735  
 <211> 300  
 <212> DNA  
 <213> Homo sapiens

<400> 4735  
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 120  
 aggagctgcc ggcggctctg ccaagtccag cagcaatggg cctgtggcca gtgcacagta  
 180  
 cgtgtcccag gcaaaagcct cagctttgca gcagcagcag tactaccagt ggtaccagca  
 240  
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 300

<210> 4736  
 <211> 93  
 <212> PRT  
 <213> Homo sapiens

&lt;400&gt; 4736

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Met Val Ala Gly Ala Gly Arg Glu Asn Gly Met Glu Thr Pro Met His
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Glu Asn Pro Glu Trp Glu Lys Ala Arg Gln Ala Leu Ala Ser Ile Ser
 20           25           30
Lys Ser Gly Ala Ala Gly Gly Ser Ala Lys Ser Ser Ser Asn Gly Pro
 35           40           45
Val Ala Ser Ala Gln Tyr Val Ser Gln Ala Lys Ala Ser Ala Leu Gln
 50           55           60
Gln Gln Gln Tyr Tyr Gln Trp Tyr Gln Gln Asp Asn Tyr Ala Tyr Pro
 65           70           75           80
Tyr Ser Tyr Tyr Tyr Pro Met Pro Pro Gly Pro Gly Met
           85           90

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&lt;210&gt; 4737

&lt;211&gt; 2602

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4737

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120
caagctcggc ccctttcaac tctgccaaga atggctccca cctggctctc agacattccc
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240
caagtgacca tgtgggaacg ggatgtttcc agtgacaggc aggagccagg gcggagaggc
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480
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780
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900
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960
cgggtgcaga gcctcacaca catcctcgcc ctgcaggagg aggagctgac caggaagggt
1020

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caaccttcag attccctgga gcctgagttt accaggaagt gccagtcctt gctgaaccgc  
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1140  
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1260  
gagcgtatgg gtgccaaggg cctgcagttg gagctgagcc gtgctcagga ggccaggcgt  
1320  
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1740  
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1920  
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1980  
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2040  
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2160  
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2280  
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aaaaaaaaaa aaaaaaaaaa aa  
2602

<210> 4738  
 <211> 756  
 <212> PRT  
 <213> Homo sapiens

<400> 4738

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His Gln Asp Val Ser Glu Arg Arg Leu Asp Thr Gln Arg Pro Gln Val
      20           25           30
Thr Met Trp Glu Arg Asp Val Ser Ser Asp Arg Gln Glu Pro Gly Arg
      35           40           45
Arg Gly Arg Ser Trp Gly Leu Glu Gly Ser Gln Ala Leu Ser Gln Gln
      50           55           60
Ala Glu Val Ile Val Arg Gln Leu Gln Glu Leu Arg Arg Leu Glu Glu
65           70           75           80
Glu Val Arg Leu Leu Arg Glu Thr Ser Leu Gln Gln Lys Met Arg Leu
      85           90           95
Glu Ala Gln Ala Met Glu Leu Glu Ala Leu Ala Arg Ala Glu Lys Ala
      100          105          110
Gly Arg Ala Glu Ala Glu Gly Leu Arg Ala Ala Leu Ala Gly Ala Glu
      115          120          125
Val Val Arg Lys Asn Leu Glu Glu Gly Arg Gln Arg Glu Leu Glu Glu
      130          135          140
Val Gln Arg Leu His Gln Glu Gln Leu Ser Ser Leu Thr Gln Ala His
145          150          155          160
Glu Glu Ala Leu Ser Ser Leu Thr Ser Lys Ala Glu Gly Leu Glu Lys
      165          170          175
Ser Leu Ser Ser Leu Glu Thr Arg Arg Ala Gly Glu Ala Lys Glu Leu
      180          185          190
Ala Glu Ala Gln Arg Glu Ala Glu Leu Leu Arg Lys Gln Leu Ser Lys
      195          200          205
Thr Gln Glu Asp Leu Glu Ala Gln Val Thr Leu Val Glu Asn Leu Arg
      210          215          220
Lys Tyr Val Gly Glu Gln Val Pro Ser Glu Val His Ser Gln Thr Trp
225          230          235          240
Glu Leu Glu Arg Gln Lys Leu Leu Glu Thr Met Gln Leu Leu Gln Glu
      245          250          255
Asp Arg Asp Ser Leu His Ala Thr Ala Glu Leu Leu Gln Val Arg Val
      260          265          270
Gln Ser Leu Thr His Ile Leu Ala Leu Gln Glu Glu Glu Leu Thr Arg
      275          280          285
Lys Val Gln Pro Ser Asp Ser Leu Glu Pro Glu Phe Thr Arg Lys Cys
      290          295          300
Gln Ser Leu Leu Asn Arg Trp Arg Glu Lys Val Phe Ala Leu Met Val
305          310          315          320
Gln Leu Lys Ala Gln Glu Leu Glu His Ser Asp Ser Val Lys Gln Leu
      325          330          335
Lys Gly Gln Val Ala Ser Leu Gln Glu Lys Val Thr Ser Gln Ser Gln
      340          345          350
Glu Gln Ala Ile Leu Gln Arg Ser Leu Gln Asp Lys Ala Ala Glu Val
      355          360          365
Glu Val Glu Arg Met Gly Ala Lys Gly Leu Gln Leu Glu Leu Ser Arg

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Ala Gln Glu Ala Arg Arg Trp Trp Gln Gln Gln Thr Ala Ser Ala Glu
385      390      395      400
Glu Gln Leu Arg Leu Val Val Asn Ala Val Ser Ser Ser Gln Ile Trp
      405      410      415
Leu Glu Thr Thr Met Ala Lys Val Glu Gly Ala Ala Ala Gln Leu Pro
      420      425      430
Ser Leu Asn Asn Arg Leu Ser Tyr Ala Val Arg Lys Val His Thr Ile
      435      440      445
Arg Gly Leu Ile Ala Arg Lys Leu Ala Leu Ala Gln Leu Arg Gln Glu
      450      455      460
Ser Cys Pro Leu Pro Pro Pro Val Thr Asp Val Ser Leu Glu Leu Gln
465      470      475      480
Gln Leu Arg Glu Glu Arg Asn Arg Leu Asp Ala Glu Leu Gln Leu Ser
      485      490      495
Ala Arg Leu Ile Gln Gln Glu Val Gly Arg Ala Arg Glu Gln Gly Glu
      500      505      510
Ala Glu Arg Gln Gln Leu Ser Lys Val Ala Gln Gln Leu Glu Gln Glu
      515      520      525
Leu Gln Gln Thr Gln Glu Ser Leu Ala Ser Leu Gly Leu Gln Leu Glu
      530      535      540
Val Ala Arg Gln Gly Gln Gln Glu Ser Thr Glu Glu Ala Ala Ser Leu
545      550      555      560
Arg Gln Glu Leu Thr Gln Gln Glu Leu Tyr Gly Gln Ala Leu Gln
      565      570      575
Glu Lys Val Ala Glu Val Glu Thr Arg Leu Arg Glu Gln Leu Ser Asp
      580      585      590
Thr Glu Arg Arg Leu Asn Glu Ala Arg Arg Glu His Ala Lys Ala Val
      595      600      605
Val Ser Leu Arg Gln Ile Gln Arg Arg Ala Ala Gln Glu Lys Glu Arg
      610      615      620
Ser Gln Glu Leu Arg Arg Leu Gln Glu Glu Ala Arg Lys Glu Glu Gly
625      630      635      640
Gln Arg Leu Ala Arg Arg Leu Gln Glu Leu Glu Arg Asp Lys Asn Leu
      645      650      655
Met Leu Ala Thr Leu Gln Gln Glu Gly Leu Leu Ser Arg Tyr Lys Gln
      660      665      670
Gln Arg Leu Leu Thr Val Leu Pro Ser Leu Leu Asp Lys Lys Lys Ser
      675      680      685
Val Val Ser Ser Pro Arg Pro Pro Glu Cys Ser Ala Ser Ala Pro Val
      690      695      700
Ala Ala Ala Val Pro Thr Arg Glu Ser Ile Lys Gly Ser Leu Ser Val
705      710      715      720
Leu Leu Asp Asp Leu Gln Asp Leu Ser Glu Ala Ile Ser Lys Glu Glu
      725      730      735
Ala Val Cys Gln Gly Asp Asn Leu Asp Arg Cys Ser Ser Ser Asn Pro
      740      745      750
Gln Met Ser Ser
      755

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&lt;210&gt; 4739

&lt;211&gt; 684

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4739

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ggaagacttg accagtcttg gtgatgagaa ggccttcacc ctatgaacac aaccaagtct  
120  
tagccctctc tctgtctcct ttaaactctg aacttctagg atgggagaat gggaactttt  
180  
gcaggttgag attcatagtg aaatcgggtc aagaagtgat cagatgcaaa gcacagggca  
240  
gttcattact ataccatggc tgagggtcttc ctgggcacca ggccctgggc tcagcacttg  
300  
gctcagtctg caccttggac cctgccagag ccctccacag caggtgctct caggcaaggc  
360  
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420  
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480  
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540  
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600  
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660  
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684

&lt;210&gt; 4740

&lt;211&gt; 119

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4740

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Leu | Ser | Arg | Ala | Gln | His | Ala | Leu | Trp | Pro | Pro | Trp | Ala | His |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Ala | Val | Thr | Gln | Leu | Ser | His | Leu | Arg | Gly | Ser | Leu | Asp | Ala | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Trp | Leu | Ser | Asp | Lys | Asp | Lys | Glu | Lys | Ile | Gln | Met | Ser | Thr | Arg | Ala |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | His | Ile | Leu | Trp | Val | Ser | Trp | Glu | Gln | Gly | Trp | Ala | Val | Pro | Glu |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Ala | Pro | Ser | Gln | Pro | Ala | Pro | Gln | Ala | Ala | Asn | Gly | Ser | Leu | Leu | Leu |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gly | Gln | Gly | Ile | Cys | Gly | Gln | Glu | Ser | Thr | Leu | Val | Arg | Arg | Arg | Leu |
|     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |
| Ala | Ser | Asn | Thr | Gln | Pro | Cys | Leu | Arg | Ala | Pro | Ala | Val | Glu | Gly | Ser |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Gly | Arg | Val | Gln | Gly | Ala | Asp |     |     |     |     |     |     |     |     |     |
|     |     |     | 115 |     |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 4741

&lt;211&gt; 411

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

<400> 4741  
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60  
ttttttctta aaaaaaaaaa aggggttttt ctttgcccc cccgttcccc ccccttcccc  
120  
ttccgaaaaa aagaggggaa ttttttaaaa aacccgaaa gggggaaggg ggggggtata  
180  
aaagataaaa tttggttttt tgggggggaa aatttgga caaccacctc gggttttttt  
240  
tccccacccc aaaaaatttt aaaagggggc cctaaaaaaa attttttctt taatttccaa  
300  
ataaaaaaaaa aatgggggttc caaaatcatt gaaaaatagg ggggactcca aaaccttgaa  
360  
ttttcccaag ggggaccact aaaatttacc ctttttttgg ggttttgggg g  
411

<210> 4742  
<211> 109  
<212> PRT  
<213> Homo sapiens

<400> 4742  
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1 5 10 15  
Phe Phe Leu Gly Pro Pro Phe Lys Ile Phe Trp Gly Gly Glu Lys Lys  
20 25 30  
Pro Glu Gly Gly Val Ser Lys Phe Ser Pro Pro Lys Asn Gln Ile Leu  
35 40 45  
Ser Phe Ile Pro Pro Pro Phe Pro Pro Phe Gly Phe Phe Lys Lys Phe  
50 55 60  
Pro Ser Phe Phe Arg Lys Gly Lys Gly Gly Glu Arg Gly Gly Gln Arg  
65 70 75 80  
Lys Thr Pro Phe Phe Leu Arg Lys Lys Arg Glu Lys Lys Lys Lys  
85 90 95  
Lys Glu Arg Lys Thr Pro Val Asp Leu Arg Glu Val Asn  
100 105

<210> 4743  
<211> 473  
<212> DNA  
<213> Homo sapiens

<400> 4743  
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60  
caaccggccc cacaaattct agcagtgcc aagaagaagga taaaagagtt caaggtggaa  
120  
gagtgattga gtcccggtat ctgcagtatg aaaagaagac aacccaaaag gctcctgcag  
180  
gagatgggtc acagacccga gggaagatgt ctgaaggtgg aaggaaatcc agcctgctcc  
240  
agaaaagcaa agcagatagc agtgggggtcg gaaaggtga cctgcagtcc acgttgctgg  
300

aagggcatgg cacagctcca cctgacctgg atctctctgc tattaatgac aaaagcatcg  
 360  
 tcaaaaagac gccacagtta gcaaaaacaa tatcaaagaa acctgagtca acatcatttt  
 420  
 ctgcccctcg gaaaaagagc ccggatttat ctgaagcgaa tggaatgatg gag  
 473

<210> 4744  
 <211> 150  
 <212> PRT  
 <213> Homo sapiens

<400> 4744  
 Met Ala Asp Ser Ser Gly Arg Gly Ala Gly Lys Pro Ala Thr Gly Pro  
 1 5 10 15  
 Thr Asn Ser Ser Ser Ala Lys Lys Lys Asp Lys Arg Val Gln Gly Gly  
 20 25 30  
 Arg Val Ile Glu Ser Arg Tyr Leu Gln Tyr Glu Lys Lys Thr Thr Gln  
 35 40 45  
 Lys Ala Pro Ala Gly Asp Gly Ser Gln Thr Arg Gly Lys Met Ser Glu  
 50 55 60  
 Gly Gly Arg Lys Ser Ser Leu Leu Gln Lys Ser Lys Ala Asp Ser Ser  
 65 70 75 80  
 Gly Val Gly Lys Gly Asp Leu Gln Ser Thr Leu Leu Glu Gly His Gly  
 85 90 95  
 Thr Ala Pro Pro Asp Leu Asp Leu Ser Ala Ile Asn Asp Lys Ser Ile  
 100 105 110  
 Val Lys Lys Thr Pro Gln Leu Ala Lys Thr Ile Ser Lys Lys Pro Glu  
 115 120 125  
 Ser Thr Ser Phe Ser Ala Pro Arg Lys Lys Ser Pro Asp Leu Ser Glu  
 130 135 140  
 Ala Asn Gly Met Met Glu  
 145 150

<210> 4745  
 <211> 666  
 <212> DNA  
 <213> Homo sapiens

<400> 4745  
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 60  
 gaggcagctgg atcaccttgg tgaagttcag acggaatcag caggaattca gcgtgcacag  
 120  
 attcagaaag aactttggcg aattcaggat gtcattggaag ggctgagtaa acataagcag  
 180  
 caaaggaggtta ctacagaaat aggtatgata ggatcaaagc ctttctcaac agttaagtac  
 240  
 aaaaatgagg gtccagatta tagactctac aagagtgaac cagagttaac aacagtggca  
 300  
 gaagttgatg aatctaattgg agaagaaaaa tcagaacctg tttcagagat agaaacttca  
 360  
 gttgttaaag gttcccactt tcctgttgga gtagtccttc caagagcaaa atcaccaaca  
 420

cccgaatctt cgacaatagc ttcctatgta accttgagga aaactaagaa gatgatggat  
 480  
 ctaagaacgg aaagaccaag aagtgcagtg gaacagctct gtttggctga aagtactcga  
 540  
 ccaaggatga ctgtggaaga gcaaattggaa agaataagaa gatatacaaca agcgtgcctg  
 600  
 agggagaaga aaaaagggtt aaatgttatc ggtgcttcag accagtcacc cttacaaagc  
 660  
 ccttaa  
 666

<210> 4746  
 <211> 221  
 <212> PRT  
 <213> Homo sapiens

<400> 4746  
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 Asn Gln Met Gln Glu Gln Leu Asp His Leu Gly Glu Val Gln Thr Glu  
 20 25 30  
 Ser Ala Gly Ile Gln Arg Ala Gln Ile Gln Lys Glu Leu Trp Arg Ile  
 35 40 45  
 Gln Asp Val Met Glu Gly Leu Ser Lys His Lys Gln Gln Arg Gly Thr  
 50 55 60  
 Thr Glu Ile Gly Met Ile Gly Ser Lys Pro Phe Ser Thr Val Lys Tyr  
 65 70 75 80  
 Lys Asn Glu Gly Pro Asp Tyr Arg Leu Tyr Lys Ser Glu Pro Glu Leu  
 85 90 95  
 Thr Thr Val Ala Glu Val Asp Glu Ser Asn Gly Glu Glu Lys Ser Glu  
 100 105 110  
 Pro Val Ser Glu Ile Glu Thr Ser Val Val Lys Gly Ser His Phe Pro  
 115 120 125  
 Val Gly Val Val Pro Pro Arg Ala Lys Ser Pro Thr Pro Glu Ser Ser  
 130 135 140  
 Thr Ile Ala Ser Tyr Val Thr Leu Arg Lys Thr Lys Lys Met Met Asp  
 145 150 155 160  
 Leu Arg Thr Glu Arg Pro Arg Ser Ala Val Glu Gln Leu Cys Leu Ala  
 165 170 175  
 Glu Ser Thr Arg Pro Arg Met Thr Val Glu Glu Gln Met Glu Arg Ile  
 180 185 190  
 Arg Arg Tyr Gln Gln Ala Cys Leu Arg Glu Lys Lys Lys Gly Leu Asn  
 195 200 205  
 Val Ile Gly Ala Ser Asp Gln Ser Pro Leu Gln Ser Pro  
 210 215 220

<210> 4747  
 <211> 1091  
 <212> DNA  
 <213> Homo sapiens

<400> 4747  
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 60

acgcatactg acgccccaaat ccgtgctgaa aatggaacag ggtccagccc tcgggggtcct  
 120  
 ggctgcagcc tccggcactt tgctgcgaa cagaacctgc tgtcgcggcc agatggctct  
 180  
 gcttccttcc tgcaagggtga cacctctgtc ctggcgggtg tgtacgggcc ggccgaggtg  
 240  
 aaggtcagca aagagatttt caacaaggcc aactcgaag tgatcctgag gccgaagatt  
 300  
 gggctgcctg caggggtcag tggatggcag tcaggccttg ctttcttccc actggaatct  
 360  
 tccatcatcc ctgcaggtgt tgcagagaag agccgggagc ggctgatcag gaacacgtgc  
 420  
 gaggcggtgg tgctgggcac gttgcacccc cgcacctcca tcaccgtggt gctgcagggt  
 480  
 gtcagcgatg ccggctctct cctggcctgt tgtctgaatg ccgcctgcat ggcattggtg  
 540  
 gatgcagggtg tgcccatgcg ggctctcttc tgtggggtcg cctgcgcctt ggactctgat  
 600  
 gggacctcg tgctggatcc tacatccaag caagaaaagg aggcccgggc agtcctgacc  
 660  
 tttgccctgg acagcgtgga acggaagctg ctgatgtcca gcaccaaggg gctctactca  
 720  
 gacactgagc tccagcagtg cctggctgcg gcccaggccg cttcgcaaca cgtcttccgt  
 780  
 ttctaccggg aatcgctgca gaggcgttac tccaagagct gaggcaagct ggggcaaggg  
 840  
 gccgctccca ttgcctccac ccactcaccc cctacagcct gaagcaaacc agcagcccag  
 900  
 ccttgccctt ctgacccatg ggctccttga gcctgcagct ctgtaaccac agggctcctg  
 960  
 tggggaggcc ttggcctgtg acagccccca ggctggggg cacagatccc cccagcaagg  
 1020  
 ataacattca aaggagctca catttatgga atggatgaat caataaatta attcacttta  
 1080  
 aaaaaaaaaa a  
 1091

&lt;210&gt; 4748

&lt;211&gt; 273

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4748

Xaa Cys Gln Ala Glu Val Thr Thr Ala Ser Ala Arg Gly Leu Gly Ala  
 1 5 10 15  
 Met Glu Glu Glu Thr His Thr Asp Ala Lys Ile Arg Ala Glu Asn Gly  
 20 25 30  
 Thr Gly Ser Ser Pro Arg Gly Pro Gly Cys Ser Leu Arg His Phe Ala  
 35 40 45  
 Cys Glu Gln Asn Leu Leu Ser Arg Pro Asp Gly Ser Ala Ser Phe Leu  
 50 55 60  
 Gln Gly Asp Thr Ser Val Leu Ala Gly Val Tyr Gly Pro Ala Glu Val  
 65 70 75 80  
 Lys Val Ser Lys Glu Ile Phe Asn Lys Ala Thr Leu Glu Val Ile Leu



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<210> 4749
<211> 2196
<212> DNA
<213> Homo sapiens
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<400> 4749
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60
gggggacacct tccagcccta cctagacacc ttgcggcagg agctgcagca gacggaccca
120
acgctgttgt cagtagtggt ggcggttctt gcggtgctgc tgacgctagt cttctggaag
180
ttaatccgga gcagaaggag cagtcagaga gctgttcttc ttgttggcct ttgtgattcc
240
gggaaaacgt tgctctttgt caggttgtta acaggccttt atagagacac tcagacgtcc
300
attactgaca gctgtgctgt atacagagtc aacaataaca ggggcaatag tctgaccttg
360
attgaccttc ccggccatga gagtttgagg cttcagttct tagagcgggt taagtcttca
420
gccagggcta ttgtgtttgt tgtggatagt gcagcattcc agcgagaggt gaaagatgtg
480
gctgagtttc tgtatcaagt cctcattgac agtatgggtc tgaagaatac accatcattc
540
ttaatagcct gcaataagca agatattgca atggcaaaat cagcaaagtt aattcaacag
600
cagctggaga aagaactcaa caccttacga gttaccggt ctgctgcccc cagcacactg
660

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gacagttcca gcactgcccc tgetcagctg gggaagaaa gcaaagagtt tgaattctca  
720  
cagttgcccc tcaaagtgga gttcctggag tgcagtgcc aagggtggaag aggggacgtg  
780  
ggctctgctg acatccagga cttggagaaa tggctggcta aaattgcctg agaggcagct  
840  
ctaaagcaca agacctggat gtgtgacaca cagttttgga aaaaggctctg tggtagtctg  
900  
gagttgatga ggaaggggta caagatgtgg ttagaaacat ttctttgttc tggaaacaaa  
960  
gtactgttga aaccagcttg gaattttttt tttttttttt ttaagttcag ttctccctta  
1020  
tggctgcctt tcaaacaagt accttttatc tgatgcctgt atcttccctt tgttaagggtg  
1080  
taacttgatg taggggtcaag gtttttgtga caacaggcag actccacaca gagaggatat  
1140  
gatgagaata tggccatcac ctgaaaagt ttcttatctt ctgtgctttt ggtccctgga  
1200  
aacaatccg cctatgtatg aagctagttg atttccagtt gcactatttc cagttgcctc  
1260  
tgaagttcac aggcaataca ttgtctagtc ctttgcaat ttctctgatt tgtgggcaca  
1320  
gttatgaagt ttccccacat gtgaagacag gtacaaaata gcagagccaa gcagacagtg  
1380  
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1440  
agcttgtcac aaacccttgg agtcattccc agataataga actggaaatg ataaatcccc  
1500  
taatgccaa ggtctagtgt gttcttagtg gttatactgg gaagtgtgtg gagatttagg  
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tgctgctctg ctgctctgga tggctgaagg ctctggggcc atcttcatgt gctgcttgaa  
1620  
gagctcctat tttgtactcc tggctagaat gctgtggaac aaatacaaag tgaaaaaagt  
1680  
tctctgtaga tttctgaagt gcatattcat tgatgccaa aaaaaaaaaa aagttgcctt  
1740  
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1800  
tttcatggta aagaaaacag cctgtctggc tcaaagcaat taaatagaat gtaatggtga  
1860  
gtacaaatga gtgcacatgt caggactcag gtctaactcc ttgtctcctg agcctaaaga  
1920  
ttgcaacata cacaagaaca cactcctatt cctacccac aactcaggg acaagcccaa  
1980  
ctaaagctta caaggagacc aggggtggctc tgtccagggg agaagccagt tatggaacag  
2040  
tgcattgaga gccatggtag gagaggccca cagttctctg gagcatgcag caggggcacc  
2100  
ccacctggcc ttgaggatca gggggagtca aaggataaag catggggctg atgacgtctg  
2160  
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2196

&lt;210&gt; 4750

<211> 276  
 <212> PRT  
 <213> Homo sapiens

<400> 4750  
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 20 25 30  
 Gln Glu Leu Gln Gln Thr Asp Pro Thr Leu Leu Ser Val Val Val Ala  
 35 40 45  
 Val Leu Ala Val Leu Leu Thr Leu Val Phe Trp Lys Leu Ile Arg Ser  
 50 55 60  
 Arg Arg Ser Ser Gln Arg Ala Val Leu Leu Val Gly Leu Cys Asp Ser  
 65 70 75 80  
 Gly Lys Thr Leu Leu Phe Val Arg Leu Leu Thr Gly Leu Tyr Arg Asp  
 85 90 95  
 Thr Gln Thr Ser Ile Thr Asp Ser Cys Ala Val Tyr Arg Val Asn Asn  
 100 105 110  
 Asn Arg Gly Asn Ser Leu Thr Leu Ile Asp Leu Pro Gly His Glu Ser  
 115 120 125  
 Leu Arg Leu Gln Phe Leu Glu Arg Phe Lys Ser Ser Ala Arg Ala Ile  
 130 135 140  
 Val Phe Val Val Asp Ser Ala Ala Phe Gln Arg Glu Val Lys Asp Val  
 145 150 155 160  
 Ala Glu Phe Leu Tyr Gln Val Leu Ile Asp Ser Met Gly Leu Lys Asn  
 165 170 175  
 Thr Pro Ser Phe Leu Ile Ala Cys Asn Lys Gln Asp Ile Ala Met Ala  
 180 185 190  
 Lys Ser Ala Lys Leu Ile Gln Gln Gln Leu Glu Lys Glu Leu Asn Thr  
 195 200 205  
 Leu Arg Val Thr Arg Ser Ala Ala Pro Ser Thr Leu Asp Ser Ser Ser  
 210 215 220  
 Thr Ala Pro Ala Gln Leu Gly Lys Lys Gly Lys Glu Phe Glu Phe Ser  
 225 230 235 240  
 Gln Leu Pro Leu Lys Val Glu Phe Leu Glu Cys Ser Ala Lys Gly Gly  
 245 250 255  
 Arg Gly Asp Val Gly Ser Ala Asp Ile Gln Asp Leu Glu Lys Trp Leu  
 260 265 270  
 Ala Lys Ile Ala  
 275

<210> 4751  
 <211> 2777  
 <212> DNA  
 <213> Homo sapiens

<400> 4751  
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 120  
 actttcttcc acaggttcga cccaagcctg tggcccagaa taacattcct attgccccca  
 180

gcaccacctc ccatgctcgc agctcctcag cttatccaga ggcccgtcat gctgaccaag  
240  
ttcaccccca caacccttcc cacatcccag aattccatcc accccgtccg tgtcgtcaat  
300  
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360  
gctactccag ggaccagact cgctggacct caaactgtac agcttagcaa gccaaagtctt  
420  
gaaaaacaga cagttaaatc tcacacagaa acagatgaga aacaaacaga gagccgcacc  
480  
atcacccac ctgctgcacc caaaccaaaa cgaggaggaga accctcagaa acttgccttc  
540  
atgggtgtctc taggggttgg aacacatgac catctagaag aaatccaaag caagaggcaa  
600  
gagcgaaaaa gaagaacaac agcaaattccg gtctacagtg gagcagtctt tgagccagag  
660  
cgtaagaaga gtgcagtgc atacctaac agcacaatgc accctgggac ccggaagaga  
720  
gccaatgagg aacactggcc aaagggtgat attcatgagg atttttgcag cgtttgcaga  
780  
aaaagtggcc agttactgat gtgcgacaca tgttcccgtg tatatcattt ggactgctta  
840  
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900  
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960  
tattgcctac aaagcagcaa aagaagaaga gaaacagaag ttacttaaatt ggagttcaga  
1020  
tttaaaacaa gaacgagaac aactagagca aaagggtgaaa cagctcagca attccataag  
1080  
taaatgcatg gaaatgaaga acaccatcct ggcccggcag aaggagatgc acagctccct  
1140  
ggagaaggta aaacagctga ttcgcctcat ccacggcatc gacctctcca aacctgtaga  
1200  
ctctgaggcc actgtggggg gccatctcca atggcccga ctgcaccccc cctgccaatg  
1260  
ccgccacctc cacgccggcc ccttccccct cctcccagag ctgcacagcg aactgtaacc  
1320  
agggggaaga gactaaataa cagagcccct ctaggagaag ccacgggatc ccggcggcaa  
1380  
ggagaacaga aactgaaga ctctagaaaa gcaaagccgg atttctggaa agtgcagaat  
1440  
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1560  
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1680  
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1740  
tgccgagccg tttgtttagg tagagaagac aagtccaaag agtgtgtggg ctttcctggt  
1800

tctaaacttt cgctactata aaaccaaaaa aaggaattga gatttcacca accccagtgc  
 1860  
 ccagaagagg gaaggggagt ggctggaggg agcagggggg tggacagtgt atcaaataag  
 1920  
 cagtatttaa tcacctctgg cgggggcctc gtgcaagggg agactgacac caagaacagc  
 1980  
 cagtaggttc ttctcccctg cactctgctc cctgcgcggt aaccccacca ctctgaagc  
 2040  
 ctgcccagtc tccttccttc cctgcttggt gagtcgcgca tctccgtggt tatcccgctg  
 2100  
 tctcctctcc aagaacaagc agagccgggc cactagcttg cccaaggcag ggaagaagga  
 2160  
 tgtgtgtgtc caggaaggaa aaaaaggtgg atcagtgatt ttacttgaaa tcaagctcca  
 2220  
 tcccttttct atatttataa gaagagaaga tcttgagtga agcagcacgc gaccaggtg  
 2280  
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 2340  
 tttctttaag gaaagtttta ttttactgtt cattttactt tcttggtaac aaaaactaaa  
 2400  
 ataaggaata gaaaagctgt ttttcaggct gacagtccaa ttaagggtag ccaagacctt  
 2460  
 gcatggtaga gtaggaatca tagtgtcagt gaggtcccgt gagtctttgt gagtccctgt  
 2520  
 gtcacgttcc gggcactggt ttttttatgc aaggggcaaaa atctttgtat ctggggaaaa  
 2580  
 aaaacttttt tttaaattaa aaaggaaaat aaaagatatt gaggtcttcc tagtgttact  
 2640  
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 2700  
 ctaaaaacag tgatttctat taaaaaggtg tcagaactgg aaaaaaaaaa aaaaaaaaaa  
 2760  
 aaaaaaaaaa aaaaaaa  
 2777

&lt;210&gt; 4752

&lt;211&gt; 335

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4752

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Arg | Gly | Leu | Pro | Lys | Trp | Gly | Gln | Lys | Thr | Gln | Ser | Leu | Cys | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Phe | Arg | Gln | His | Leu | Leu | Ser | Pro | Ser | Lys | Tyr | His | Ser | Leu | Ser | Pro |
|     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |
| Leu | Leu | Asp | Ser | Leu | His | Val | Gln | Thr | Phe | Phe | His | Arg | Phe | Asp | Pro |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ser | Leu | Trp | Pro | Arg | Ile | Thr | Phe | Leu | Leu | Pro | Pro | Ala | Pro | Pro | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Met | Leu | Ala | Ala | Pro | Gln | Leu | Ile | Gln | Arg | Pro | Val | Met | Leu | Thr | Lys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Phe | Thr | Pro | Thr | Thr | Leu | Pro | Thr | Ser | Gln | Asn | Ser | Ile | His | Pro | Val |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Arg | Val | Val | Asn | Gly | Gln | Thr | Ala | Thr | Ile | Ala | Lys | Thr | Phe | Pro | Met |

|   |                                     |     |
|---|-------------------------------------|-----|
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| Ala Gln Leu Thr Ser Ile Val                                     | Ile Ala Thr Pro Gly Thr Arg Leu Ala |     |
| 115   | 120                                 | 125 |
| Gly Pro Gln Thr Val Gln Leu Ser Lys Pro Ser                     | Leu Glu Lys Gln Thr                 |     |
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| Val Lys Ser His Thr Glu Thr Asp Glu Lys Gln Thr Glu Ser Arg Thr |                                     |     |
| 145   | 150                                 | 155 |
| Ile Thr Pro Pro Ala Ala Pro Lys Pro Lys Arg Glu Glu Asn Pro Gln |                                     |     |
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| Lys Leu Ala Phe Met Val Ser Leu Gly Leu Val Thr His Asp His Leu |                                     |     |
| 180   | 185                                 | 190 |
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| 195   | 200                                 | 205 |
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| 210   | 215                                 | 220 |
| Ala Val Thr Tyr Leu Asn Ser Thr Met His Pro Gly Thr Arg Lys Arg |                                     |     |
| 225   | 230                                 | 235 |
| Ala Asn Glu Glu His Trp Pro Lys Gly Asp Ile His Glu Asp Phe Cys |                                     |     |
| 245   | 250                                 | 255 |
| Ser Val Cys Arg Lys Ser Gly Gln Leu Leu Met Cys Asp Thr Cys Ser |                                     |     |
| 260   | 265                                 | 270 |
| Arg Val Tyr His Leu Asp Cys Leu Asp Pro Pro Leu Lys Thr Ile Pro |                                     |     |
| 275   | 280                                 | 285 |
| Lys Gly Met Trp Ile Cys Pro Arg Cys Gln Asp Gln Met Leu Lys Lys |                                     |     |
| 290   | 295                                 | 300 |
| Glu Glu Ala Ile Pro Trp Xaa Trp Asn Phe Ser Asn Cys Ser Phe Leu |                                     |     |
| 305   | 310                                 | 315 |
| Tyr Cys Leu Gln Ser Ser Lys Arg Arg Arg Glu Thr Glu Val Thr     |                                     |     |
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&lt;210&gt; 4753

&lt;211&gt; 5298

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4753

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&lt;210&gt; 4754

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 <213> Homo sapiens

<400> 4754

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Pro Ala Asp Lys Asn Val Pro Lys Ile Lys His Arg Lys Lys Ile Lys
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Asp His Leu Thr Asn Asn Arg Asn Asp Leu Ile Ser Lys Glu Glu Gln
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Phe Asp Ala Ser Val Ser Ser Ser Ser Ser Asn Gln Pro Glu Pro Glu
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&lt;210&gt; 4755

&lt;211&gt; 2093

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4755

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&lt;210&gt; 4760

&lt;211&gt; 78

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4760

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Arg | Phe | Val | Gly | Thr | Asn | Gly | Glu | Glu | Leu | Ser | Phe | Asn | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Thr | Ala | Ala | Thr | Val | Ser | Val | Pro | Gln | Asp | Gly | Cys | Arg | Leu | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Lys | Gly | Gln | Thr | Lys | Thr | Leu | Phe | Glu | Phe | Ser | Ser | Ser | Arg | Ala | Gly |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Phe | Leu | Pro | Leu | Trp | Asp | Val | Ala | Ala | Thr | Asp | Phe | Gly | Gln | Thr | Asn |
|     | 50  |     |     |     | 55  |     |     |     |     |     | 60  |     |     |     |     |
| Gln | Lys | Phe | Gly | Phe | Glu | Leu | Gly | Pro | Val | Cys | Phe | Ser | Ser |     |     |
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&lt;210&gt; 4761

&lt;211&gt; 3973

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4761

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 <213> Homo sapiens

<400> 4762  
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 50 55 60  
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 Gly Lys Glu Lys Leu Cys Phe Ser Leu Thr Cys Pro Leu Gly Ser Gly  
 100 105 110  
 Ser Pro Glu Gly Val Val Lys Ala Gly Ala Pro Glu Leu Val Asp Lys  
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&lt;210&gt; 4764

&lt;211&gt; 719

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4764

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Phe | Gly | Gly | Asn | Ile | Lys | Ser | Ser | His | Glu | Ile | Thr | Glu | Lys | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Glu | Glu | Thr | Glu | Lys | Leu | Lys | Asn | Asp | Gln | Gln | Ala | Lys | Ile | Pro |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Lys | Lys | Arg | Glu | Ile | Lys | Leu | Ser | Asp | Asp | Phe | Asp | Ser | Pro | Val |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Lys | Gly | Pro | Leu | Cys | Lys | Ser | Val | Thr | Pro | Thr | Lys | Glu | Phe | Leu | Lys |
|     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |     |
| Asp | Glu | Ile | Lys | Gln | Glu | Glu | Glu | Thr | Cys | Lys | Arg | Ile | Ser | Thr | Ile |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |
| Thr | Ala | Leu | Gly | His | Glu | Gly | Lys | Gln | Leu | Val | Asn | Gly | Glu | Val | Ser |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Asp | Glu | Arg | Val | Ala | Pro | Asn | Phe | Lys | Thr | Glu | Pro | Ile | Glu | Thr | Lys |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Phe | Tyr | Glu | Thr | Lys | Glu | Glu | Ser | Tyr | Ser | Pro | Ser | Lys | Asp | Arg | Asn |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ile | Ile | Thr | Glu | Gly | Asn | Gly | Thr | Glu | Ser | Leu | Asn | Ser | Val | Ile | Thr |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Met | Lys | Thr | Gly | Glu | Leu | Glu | Lys | Glu | Thr | Ala | Pro | Leu | Arg | Lys |
| 145 |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |     |
| Asp | Ala | Asp | Ser | Ser | Ile | Ser | Val | Leu | Glu | Ile | His | Ser | Gln | Lys | Ala |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Gln | Ile | Glu | Glu | Pro | Asp | Pro | Pro | Glu | Met | Glu | Thr | Ser | Leu | Asp | Ser |

3943

|   |     |     |
|---|-----|-----|
| 610   | 615 | 620 |
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| 625   | 630 | 635 |
| Glu Asp Gln Glu Glu Lys Lys Lys Asp Ser Lys Lys Ser Lys Ala Asn |     | 640 |
|   | 645 | 650 |
| Leu Leu Glu Arg Arg Ser Thr Arg Thr Arg Lys Cys Ile Ser Tyr Arg |     | 655 |
|   | 660 | 665 |
| Phe Asp Glu Phe Asp Glu Ala Ile Asp Glu Ala Ile Glu Asp Asp Ile |     | 670 |
|   | 675 | 680 |
| Lys Glu Ala Asp Gly Gly Gly Val Gly Arg Gly Lys Asp Ile Ser Thr |     | 685 |
|   | 690 | 695 |
| Ile Thr Gly His Arg Gly Lys Asp Ile Ser Thr Ile Leu Asp Glu     |     | 700 |
| 705   | 710 | 715 |

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 <212> DNA  
 <213> Homo sapiens

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&lt;210&gt; 4766

&lt;211&gt; 280

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4766

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Gln | Ala | Lys | Tyr | Asn | Ser | Thr | Arg | Asp | Met | Leu | Asp | Asp | Asp | Gly |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Asp | Thr | Thr | Met | Ser | Leu | His | Ser | Gln | Ala | Ser | Ala | Thr | Thr | Arg | His |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Pro | Glu | Pro | Arg | Arg | Thr | Glu | His | Arg | Ala | Pro | Ser | Ser | Thr | Trp | Arg |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |
| Pro | Val | Ala | Leu | Thr | Leu | Leu | Thr | Leu | Cys | Leu | Val | Leu | Leu | Ile | Gly |
|     |     |     | 50  |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Leu | Ala | Ala | Leu | Gly | Leu | Leu | Phe | Phe | Gln | Tyr | Tyr | Gln | Leu | Ser | Asn |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Thr | Gly | Gln | Asp | Thr | Ile | Ser | Gln | Met | Glu | Glu | Arg | Leu | Gly | Asn | Thr |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Ser | Gln | Glu | Leu | Gln | Ser | Leu | Gln | Val | Gln | Asn | Ile | Lys | Leu | Ala | Gly |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Leu | Gln | His | Val | Ala | Glu | Lys | Leu | Cys | Arg | Glu | Leu | Tyr | Asn | Lys |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ala | Gly | Ala | His | Arg | Cys | Ser | Pro | Cys | Thr | Glu | Gln | Trp | Lys | Trp | His |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gly | Asp | Asn | Cys | Tyr | Gln | Phe | Tyr | Lys | Asp | Ser | Lys | Ser | Trp | Glu | Asp |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     |     | 160 |
| Cys | Lys | Tyr | Phe | Cys | Leu | Ser | Glu | Asn | Ser | Thr | Met | Leu | Lys | Ile | Asn |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Lys | Gln | Glu | Asp | Leu | Glu | Phe | Ala | Ala | Ser | Gln | Ser | Tyr | Ser | Glu | Phe |

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<210> 4768
<211> 460
<212> PRT
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| <400> 4768 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Xaa        | Arg | Arg | Gly | Ala | Val | Ala | Pro | Pro | Glu | Arg | Gly | Val | Gly | Asn | Gly |
| 1          |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg        | Ala | Pro | Glu | Val | Ala | Pro | Glu | Glu | Val | Asp | Glu | Ser | Lys | Lys | Glu |
|            |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asp        | Phe | Ser | Glu | Ala | Asp | Leu | Val | Asp | Val | Ser | Ala | Tyr | Ser | Gly | Leu |
|            |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Gly        | Glu | Asp | Ser | Ala | Gly | Ser | Ala | Leu | Glu | Glu | Asp | Glu | Asp | Asp |     |
|            | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu        | Gly | Asp | Gly | Glu | Pro | Pro | Tyr | Glu | Pro | Glu | Ser | Gly | Cys | Val | Glu |
| 65         |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ile        | Pro | Gly | Leu | Ser | Glu | Glu | Glu | Asp | Pro | Ala | Pro | Ser | Arg | Lys | Ile |
|            |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| His        | Phe | Ser | Thr | Ala | Pro | Ile | Gln | Val | Phe | Ser | Thr | Tyr | Ser | Asn | Glu |
|            |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asp        | Tyr | Asp | Arg | Arg | Asn | Glu | Asp | Val | Asp | Pro | Met | Ala | Ala | Ser | Ala |
|            |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Glu        | Tyr | Glu | Leu | Glu | Lys | Arg | Val | Glu | Arg | Leu | Glu | Leu | Phe | Pro | Val |
|            | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Glu        | Leu | Glu | Lys | Asp | Ser | Glu | Gly | Leu | Gly | Ile | Ser | Ile | Ile | Gly | Met |
| 145        |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly        | Ala | Gly | Ala | Asp | Met | Gly | Leu | Glu | Lys | Leu | Gly | Ile | Phe | Val | Lys |
|            |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Thr        | Val | Thr | Glu | Gly | Gly | Ala | Ala | His | Arg | Asp | Gly | Arg | Ile | Gln | Val |
|            |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Asn        | Asp | Leu | Leu | Val | Glu | Val | Asp | Gly | Thr | Ser | Leu | Val | Gly | Val | Thr |
|            |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Gln        | Ser | Phe | Ala | Ala | Ser | Val | Leu | Arg | Asn | Thr | Lys | Gly | Arg | Val | Arg |
|            | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Phe        | Met | Ile | Gly | Arg | Glu | Arg | Pro | Gly | Glu | Gln | Ser | Glu | Val | Ala | Gln |
| 225        |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Leu        | Ile | Gln | Gln | Thr | Leu | Glu | Gln | Glu | Arg | Trp | Gln | Arg | Glu | Met | Met |
|            |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Glu        | Gln | Arg | Tyr | Ala | Gln | Tyr | Gly | Glu | Asp | Asp | Glu | Glu | Thr | Gly | Glu |
|            |     |     | 260 |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Tyr        | Ala | Thr | Asp | Glu | Asp | Glu | Glu | Leu | Ser | Pro | Thr | Phe | Pro | Gly | Gly |

|                             |                     |                 |
|-----------------------------|---------------------|-----------------|
| 275                         | 280                 | 285             |
| Glu Met Ala Ile Glu Val Phe | Glu Leu Ala Glu Asn | Glu Asp Ala Leu |
| 290                         | 295                 | 300             |
| Ser Pro Val Asp Met Glu Pro | Glu Lys Leu Val His | Lys Phe Lys Glu |
| 305                         | 310                 | 315             |
| Leu Gln Ile Lys His Ala Val | Thr Glu Ala Glu Ile | Gln Gln Leu Lys |
| 325                         | 330                 | 335             |
| Arg Lys Leu Gln Ser Leu Glu | Gln Glu Lys Gly Arg | Trp Arg Val Glu |
| 340                         | 345                 | 350             |
| Lys Ala Gln Leu Glu Gln Ser | Val Glu Glu Asn Lys | Glu Arg Met Glu |
| 355                         | 360                 | 365             |
| Lys Leu Glu Gly Tyr Trp Gly | Glu Ala Gln Ser Leu | Cys Gln Ala Val |
| 370                         | 375                 | 380             |
| Asp Glu His Leu Arg Glu Thr | Gln Ala Gln Tyr Gln | Ala Leu Glu Arg |
| 385                         | 390                 | 395             |
| Lys Tyr Ser Lys Ala Lys Arg | Leu Ile Lys Asp Tyr | Gln Gln Lys Glu |
| 405                         | 410                 | 415             |
| Ile Glu Phe Leu Lys Lys Glu | Thr Ala Gln Arg Arg | Val Leu Glu Glu |
| 420                         | 425                 | 430             |
| Ser Glu Leu Ala Arg Lys Glu | Glu Met Asp Lys Leu | Leu Asp Lys Ile |
| 435                         | 440                 | 445             |
| Ser Glu Leu Glu Gly Asn Leu | Gln Thr Leu Arg Asn |                 |
| 450                         | 455                 | 460             |

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 <212> DNA  
 <213> Homo sapiens

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<211> 237

<212> PRT

<213> Homo sapiens

<400> 4770

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Val | Asn | Met | Asp | Val | Ile | Asn | Ala | Leu | Leu | Ala | Phe | Leu | Glu |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Lys | Arg | Leu | His | Gln | Thr | His | Arg | Leu | Lys | Glu | Cys | Val | Ala | Pro | Val |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Ser | Val | Leu | Thr | Glu | Cys | Ala | Arg | Met | His | Arg | Pro | Ala | Arg | Lys |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |
| Phe | Leu | Lys | Ala | Gln | Val | Leu | Pro | Pro | Leu | Arg | Asp | Val | Arg | Thr | Arg |
|     |     |     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |
| Pro | Glu | Val | Gly | Asp | Leu | Leu | Arg | Asn | Lys | Leu | Val | Arg | Leu | Met | Thr |
|     |     |     | 65  |     |     |     | 70  |     |     |     | 75  |     |     | 80  |     |
| His | Leu | Asp | Thr | Asp | Val | Lys | Arg | Val | Ala | Ala | Glu | Phe | Leu | Phe | Val |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Leu | Cys | Ser | Glu | Ser | Val | Pro | Arg | Phe | Ile | Lys | Tyr | Thr | Gly | Tyr | Gly |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn | Ala | Ala | Gly | Leu | Leu | Ala | Ala | Arg | Gly | Leu | Met | Ala | Gly | Gly | Arg |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |
| Pro | Glu | Gly | Gln | Tyr | Ser | Glu | Asp | Glu | Asp | Thr | Asp | Thr | Asp | Glu | Tyr |
|     |     |     | 130 |     |     |     | 135 |     |     |     | 140 |     |     |     |     |
| Lys | Glu | Ala | Lys | Ala | Ser | Ile | Asn | Pro | Val | Thr | Gly | Arg | Val | Glu | Glu |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 145 |     | 150 |     | 155 |     | 160 |     |     |     |     |     |     |     |     |     |
| Lys | Pro | Pro | Asn | Pro | Met | Glu | Gly | Met | Thr | Glu | Glu | Gln | Lys | Glu | His |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Glu | Ala | Met | Lys | Leu | Val | Thr | Met | Phe | Asp | Lys | Leu | Ser | Ser | Pro | Thr |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ala | Pro | Phe | Pro | Asn | Arg | Asn | Arg | Val | Ile | Gln | Pro | Met | Gly | Met | Ser |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Pro | Arg | Gly | His | Leu | Thr | Ser | Leu | Gln | Asp | Ala | Met | Cys | Glu | Thr | Met |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Glu | Gln | Gln | Leu | Ser | Ser | Asp | Pro | Asp | Ser | Asp | Pro | Asp |     |     |     |
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 <212> DNA  
 <213> Homo sapiens

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 <212> PRT  
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 Lys Pro Asp Val Val Gln Asp Lys Glu Thr Glu Arg Asn Leu Gln Arg  
   50                  55                  60  
 Ile Ala Thr Arg Gly Val Val Gln Leu Phe Asn Ala Val Gln Lys His  
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           115                  120                  125  
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      35           40           45
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Leu Trp Leu His Cys Pro Pro Cys Tyr Phe Phe Glu Arg Ala Asn His
      35           40           45
Thr Ala Thr Ser Leu Pro Leu His Leu Leu Ser Leu Leu Leu Thr
      50           55           60
Ile His Ala Ala His Pro Val Thr Ser Phe Gln Phe Leu Leu Thr Phe

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&lt;210&gt; 4778

&lt;211&gt; 144

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4778

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ala | Ala | Ala | Arg | Leu | Asn | Arg | Leu | Lys | Lys | Lys | Glu | Tyr | Val | Met |
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| Gly | Leu | Glu | Ser | Arg | Val | Arg | Gly | Leu | Ala | Ala | Glu | Asn | Gln | Glu | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Ala | Glu | Asn | Arg | Glu | Leu | Gly | Lys | Arg | Val | Gln | Ala | Leu | Gln | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Glu | Ser | Arg | Tyr | Leu | Arg | Ala | Val | Leu | Ala | Asn | Glu | Thr | Gly | Leu | Ala |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Arg | Leu | Leu | Ser | Arg | Leu | Ser | Gly | Val | Gly | Leu | Arg | Leu | Thr | Thr | Ser |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Leu | Phe | Arg | Asp | Ser | Pro | Ala | Gly | Asp | His | Asp | Tyr | Ala | Leu | Pro | Val |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Gly | Lys | Gln | Lys | Gln | Asp | Leu | Leu | Glu | Glu | Asp | Asp | Ser | Ala | Gly | Gly |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Val | Cys | Leu | His | Val | Asp | Lys | Asp | Lys | Val | Ser | Val | Glu | Phe | Cys | Ser |

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&lt;213&gt; Homo sapiens

&lt;400&gt; 4780

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 35          40          45
Gln Gln Gln Gln Gln Gln Gln Gln Gln Pro Gln Gln Pro Gln Val Leu
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Ser Ser Glu Gly Gly Gln Leu Arg His Asn Pro Leu Asp Ile Gln Met
65          70          75          80
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Pro Gly Glu Ala Ala Val Arg Arg Ser Val Glu His Leu Gln Lys His
100          105          110
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210          215          220
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Ser Ser Val Asn Ser Leu Ala Glu Val His Arg Leu Tyr Val Gly Gly
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Pro Pro Leu Glu Lys Glu Pro Arg Glu Leu Phe Val Lys Gly Thr Met
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|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |
| Leu | Glu | Arg | Cys | Pro | His | Pro | Val | Thr | Leu | Ala | Gly | Met | Leu | Glu |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |
| Gly | Val | Ser | Tyr | Leu | Pro | Val | Asn | Gln | Asn | Trp | Glu | Arg | Tyr | Leu |
|     |     | 435 |     |     |     |     | 440 |     |     |     | 445 |     |     |     |
| Glu | Ala | Gln | Gly | Thr | Tyr | Glu | Glu | Leu | Gln | Arg | Glu | Met | Lys | Lys |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |
| Leu | Met | Asp | Leu | Ala | Asn | Asp | Ala | Cys | Gln | Leu | Leu | Ser | Gly | Glu |
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| Ser | Lys | Leu | Pro | Ile | Glu | Gly | Ala | Gly | Ala | Pro | Gly | Asp | Pro | Met |
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| Gln | Glu | Asp | Leu | Gly | Pro | Cys | Ser | Glu | Glu | Glu | Glu | Phe | Gln | Gln |
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| Val | Met | Ala | Arg | Ala | Cys | Leu | Gln | Lys | Leu | Lys | Gly | Thr | Thr | Glu |
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|     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Leu | Leu | Ser | Leu | Gln | Met | Arg | Val | Thr | Pro | Lys | Leu | Met | Ala | Leu |
|     | 595 |     |     |     |     |     | 600 |     |     |     |     | 605 |     |     |
| Trp | Asp | Gly | Phe | Pro | Leu | His | Tyr | Ser | Glu | Arg | His | Gly | Trp | Gly |
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| Leu | Val | Pro | Gly | Arg | Arg | Asp | Asn | Leu | Ala | Lys | Leu | Pro | Thr | Gly |
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|     | 740 |     |     |     |     |     | 745 |     |     |     |     |     | 750 |     |
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|     | 755 |     |     |     |     | 760 |     |     |     |     |     | 765 |     |     |
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| 770 |     |     |     |     |     | 775 |     |     |     |     | 780 |     |     |     |
| Pro | Gly | Gly | Ala | Ser | Gly | Pro | Arg | Ala | Leu | Glu | Ile | Asn | Lys | Met |
| 785 |     |     |     |     | 790 |     |     |     |     | 795 |     |     |     | 800 |
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|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
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| Gln | Arg | Leu | Lys | Ser | Leu | Asn | Leu | Arg | Ser | Cys | Arg | His | Leu | Ser | Asp |
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| 165   | 170 | 175 |
| Asn Ile Ser Asp Thr Gly Ile Met His Leu Ala Met Gly Ser Leu Arg |     |     |
| 180   | 185 | 190 |
| Leu Ser Gly Leu Asp Val Ser Phe Cys Asp Lys Val Gly Asp Gln Ser |     |     |
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&lt;210&gt; 4785

&lt;211&gt; 3289

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| Ser | Leu | Arg | Gly | Lys | Ala | Val | Val | Leu | Met | Gly | Lys | Asn | Thr | Met | Met |
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| Leu | Leu | Pro | His | Ile | Arg | Gly | Asn | Val | Gly | Phe | Val | Phe | Thr | Lys | Glu |
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| Asp | Leu | Thr | Glu | Ile | Arg | Asp | Met | Leu | Leu | Ala | Asn | Lys | Val | Pro | Ala |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
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|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Gln | Asn | Thr | Gly | Leu | Gly | Pro | Glu | Lys | Thr | Ser | Phe | Phe | Gln | Ala | Leu |
|     | 130 |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |     |
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| Val | Gln | Leu | Ile | Lys | Thr | Gly | Asp | Lys | Val | Gly | Ala | Ser | Glu | Ala | Thr |
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| Leu | Leu | Asn | Met | Leu | Asn | Ile | Ser | Pro | Phe | Ser | Phe | Gly | Leu | Val | Ile |
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&lt;210&gt; 4790

&lt;211&gt; 241

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4790

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Thr Phe Glu Leu Phe Leu Thr Ile Ile Asp Gly Pro Ala Asn Tyr Asn
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65           70           75           80
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&lt;210&gt; 4791

&lt;211&gt; 4481

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4791

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&lt;210&gt; 4792

&lt;211&gt; 179

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4792

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| Ser | Lys | Ile | Lys | Leu | His | Thr | Tyr | His | His | Leu | Ile | Val | Asp | Lys | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asn | Lys | Asn | Lys | Gln | Trp | Gly | Lys | Gly | Thr | Leu | Phe | Asn | Lys | Trp | Cys |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Trp | Asp | Asn | Ser | Leu | Ala | Ile | Cys | Arg | Ile | Val | Lys | Leu | Asp | Pro | Tyr |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Pro | Ser | Arg | Tyr | Thr | Lys | Ile | Asn | Ser | Arg | Trp | Ile | Lys | Asp | Leu | Asn |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ile | Lys | Pro | Lys | Ser | Ile | Lys | Phe | Leu | Glu | Asp | Asn | Pro | Gly | Asn | Ala |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Ile | Leu | Asp | Ile | Ser | Ala | Gly | Lys | Asp | Leu | Met | Met | Asn | Thr | Xaa | Lys |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Ala | Ile | Thr | Lys | Thr | Lys | Ile | Asp | Lys | Trp | Asp | Leu | Ile | Lys | Leu |     |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
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<213> Homo sapiens

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| Arg | Val | Gly | Gln | Gly | Arg | Ala | Asn | Asp | Thr | Phe | Pro | Leu | Ala | Lys | Glu |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asp | Thr | Pro | Glu | Ala | Lys | Cys | Ser | Met | Gln | Gln | Pro | Gly | Ile | Gln | Ala |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Thr | Ser | Ser | Val | Ala | Gly | Arg | Gln | Pro | Gly | Ala | Phe | Ser | Glu | Glu | Lys |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Pro | Val | Ile | Ile | Pro | Gln | Met | Leu | Leu | Glu | Leu | Trp | Ala | Gln | Gly |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Asn | Arg | Pro | Ile | Met | Val | Leu | Pro | Glu | Gly | Leu | His | Leu | Leu | Tyr | Thr |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Arg | His | Lys | Ile | Arg | Leu | Pro | Arg | Glu | Glu | Pro | Ser | Asp | Ser | Val | Gln |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |
| Arg | Ala | His | Val | Thr | Ile |     |     |     |     |     |     |     |     |     |     |
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<213> Homo sapiens

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&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4796

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|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |  |  |  |
| Lys | His | Arg | Ser | Arg | Ser | Arg | Ser | Arg | Asn | Ala | Gly | Lys | Arg | Ser | Arg |  |  |  |  |
|     | 290 |     |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |  |  |  |  |
| Ser | Arg | Ser | Lys | Glu | Lys | Ser | Ser | Lys | His | Lys | Asn | Glu | Ser | Lys | Glu |  |  |  |  |
| 305 |     |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     | 320 |  |  |  |  |
| Lys | Ser | Asn | Lys | Arg | Ser | Arg | Ser | Gly | Ser | Gln | Gly | Arg | Thr | Asp | Ser |  |  |  |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |  |  |  |
| Val | Glu | Lys | Ser | Lys | Lys | Arg | Glu | His | Ser | Pro | Ser | Lys | Glu | Lys | Ser |  |  |  |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |  |  |  |
| Arg | Lys | Arg | Ser | Arg | Ser | Lys | Glu | Arg | Ser | His | Lys | Arg | Asp | His | Ser |  |  |  |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |  |  |  |
| Asp | Ser | Lys | Asp | Gln | Ser | Asp | Lys | His | Asp | Arg | Arg | Arg | Ser | Gln | Ser |  |  |  |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |  |  |  |
| Ile | Glu | Gln | Glu | Ser | Gln | Glu | Lys | Gln | His | Lys | Asn | Lys | Asp | Glu | Thr |  |  |  |  |
| 385 |     |     |     |     |     | 390 |     |     |     | 395 |     |     |     |     | 400 |  |  |  |  |
| Val |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |

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&lt;211&gt; 358

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4799

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&lt;210&gt; 4800

&lt;211&gt; 119

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4800

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| Ser | Gln | Asp | Pro | Leu | Ser | Val | Leu | Leu | Pro | Arg | Gly | Leu | Leu | Arg | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Pro | Pro | Cys | Gly | His | Arg | Gly | Ala | Leu | Asp | Gln | Pro | His | His | Arg | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ala | Gln | Pro | His | Leu | Gln | Val | Val | Arg | Gln | Arg | Ser | Pro | Pro | Ala | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Trp | Ser | Pro | Pro | Pro | Arg | Ala | Leu | Ser | His | Val | Phe | Leu | Phe | Gly | Asp |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Arg | Pro | Phe | Trp | Trp | Val | His | Glu | Ser | Gly | Tyr | Tyr | Ser | Gln | Ala | Pro |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 85  |     | 90  |     | 95  |     |     |     |     |     |     |     |     |     |     |
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<213> Homo sapiens

<400> 4802

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| Leu | Glu | Ile | Arg | Gly | Ser | Thr | Leu | Leu | Arg | Cys | Leu | Asp | Ser | Gly | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Pro | Gly | Ala | Ser | Arg | Gly | Leu | Val | Gly | Ser | Trp | Ala | Ala | Met | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Thr | Leu | Gly | Ala | Gly | Ile | Val | Ile | Ala | Glu | Ala | Leu | Gln | Asn | Gln |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |
| Leu | Ala | Trp | Leu | Glu | Asn | Val | Trp | Leu | Trp | Ile | Thr | Phe | Leu | Gly | Asp |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Lys | Ile | Leu | Phe | Leu | Phe | Tyr | Phe | Pro | Ala | Ala | Tyr | Tyr | Ala | Ser |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Arg | Arg | Val | Gly | Ile | Ala | Val | Leu | Trp | Ile | Ser | Leu | Ile | Thr | Glu | Trp |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Leu | Asn | Leu | Ile | Phe | Lys | Trp | Phe | Leu | Phe | Gly | Asp | Arg | Pro | Phe | Trp |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Trp | Val | His | Glu | Ser | Gly | Tyr | Tyr | Ser | Gln | Ala | Pro | Ala | Gln | Val | His |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Gln | Phe | Pro | Ser | Ser | Cys | Glu | Thr | Gly | Pro | Gly | Ser | Pro | Ser | Gly | His |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Cys | Met | Ile | Thr | Gly | Ala | Ala | Leu | Trp | Pro | Ile | Met | Thr | Ala | Leu | Ser |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ser | Gln | Val | Ala | Thr | Arg | Ala | Arg | Ser | Arg | Trp | Val | Arg | Val | Met | Pro |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ser | Leu | Ala | Tyr | Cys | Thr | Phe | Leu | Leu | Ala | Val | Gly | Leu | Ser | Arg | Ile |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Phe | Ile | Leu | Ala | His | Phe | Pro | His | Gln | Val | Leu | Ala | Gly | Leu | Ile | Thr |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Gly | Ala | Val | Leu | Gly | Trp | Leu | Met | Thr | Xaa | Pro | Glu | Cys | Leu | Trp | Ser |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gly | Ser | Xaa | Ser | Phe | Tyr | Gly | Leu | Thr | Ala | Leu | Ala | Leu | Met | Leu | Gly |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Thr | Ser | Leu | Ile | Tyr | Trp | Thr | Leu | Phe | Thr | Leu | Gly | Leu | Asp | Leu | Ser |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Trp | Ser | Ile | Ser | Leu | Ala | Phe | Lys | Trp | Cys | Glu | Arg | Pro | Glu | Trp | Ile |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| His | Val | Asp | Ser | Arg | Pro | Phe | Ala | Ser | Leu | Ser | Arg | Asp | Ser | Gly | Ala |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |
| Ala | Leu | Gly | Leu | Gly | Ile | Ala | Leu | His | Ser | Pro | Cys | Tyr | Ala | Gln | Val |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Arg | Arg | Ala | Gln | Leu | Gly | Asn | Gly | Gln | Lys | Ile | Ala | Cys | Leu | Val | Leu |

|   |     |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|-----|
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| Ala Met Gly Leu Leu Gly Pro Leu Asp Trp Leu Gly His Pro Pro Gln |     |     |     |     |     |     |
|   | 325 |     | 330 |     | 335 |     |
| Ile Ser Leu Phe Tyr Ile Phe Asn Phe Leu Lys Tyr Thr Leu Trp Pro |     |     |     |     |     |     |
|   | 340 |     | 345 |     | 350 |     |
| Cys Leu Val Leu Ala Leu Val Pro Trp Ala Val His Met Phe Ser Ala |     |     |     |     |     |     |
|   | 355 |     | 360 |     | 365 |     |
| Gln Glu Ala Pro Pro Ile His Ser Ser                             |     |     |     |     |     |     |
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&lt;213&gt; Homo sapiens

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<211> 438

<212> PRT

<213> Homo sapiens

<400> 4806

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Lys | Glu | Leu | Arg | Ser | Thr | Ile | Leu | Phe | Asn | Ala | Tyr | Lys | Lys | 1   | 5   | 10  | 15  |
| Glu | Ile | Phe | Thr | Thr | Asn | Asn | Gly | Tyr | Lys | Ser | Met | Gln | Lys | Lys | Leu | 20  | 25  | 30  |     |
| Arg | Ser | Asn | Trp | Lys | Ile | Gln | Ser | Leu | Lys | Asp | Glu | Ile | Thr | Ser | Glu | 35  | 40  | 45  |     |
| Lys | Leu | Asn | Gly | Val | Lys | Leu | Trp | Ile | Thr | Ala | Gly | Pro | Arg | Glu | Lys | 50  | 55  | 60  |     |
| Phe | Thr | Ala | Ala | Glu | Phe | Glu | Ile | Leu | Lys | Lys | Tyr | Leu | Asp | Thr | Gly | 65  | 70  | 75  | 80  |
| Gly | Asp | Val | Leu | Val | Met | Leu | Gly | Glu | Gly | Gly | Glu | Ser | Arg | Phe | Asp | 85  | 90  | 95  |     |
| Thr | Asn | Ile | Asn | Phe | Leu | Leu | Glu | Glu | Tyr | Gly | Ile | Met | Val | Asn | Asn | 100 | 105 | 110 |     |
| Asp | Ala | Val | Val | Arg | Asn | Val | Tyr | His | Lys | Tyr | Phe | His | Pro | Lys | Glu | 115 | 120 | 125 |     |
| Ala | Leu | Val | Ser | Ser | Gly | Val | Leu | Asn | Arg | Glu | Ile | Ser | Arg | Ala | Ala | 130 | 135 | 140 |     |
| Gly | Lys | Ala | Val | Leu | Ala | Ile | Ile | Asp | Glu | Glu | Ser | Ser | Gly | Asn | Asn | 145 | 150 | 155 | 160 |
| Ala | Gln | Ala | Leu | Thr | Phe | Val | Tyr | Pro | Phe | Gly | Ala | Thr | Leu | Ser | Val | 165 | 170 | 175 |     |
| Met | Lys | Pro | Ala | Val | Ala | Val | Leu | Ser | Thr | Gly | Ser | Val | Cys | Phe | Pro | 180 | 185 | 190 |     |
| Leu | Asn | Arg | Pro | Ile | Leu | Ala | Phe | Tyr | His | Ser | Lys | Asn | Gln | Gly | Gly | 195 | 200 | 205 |     |
| Lys | Leu | Ala | Val | Leu | Gly | Ser | Cys | His | Met | Phe | Ser | Asp | Gln | Tyr | Leu | 210 | 215 | 220 |     |
| Asp | Lys | Glu | Glu | Asn | Ser | Lys | Ile | Met | Asp | Val | Val | Val | Phe | Gln | Trp | 225 | 230 | 235 | 240 |
| Leu | Thr | Thr | Gly | Asp | Ile | His | Leu | Asn | Gln | Ile | Asp | Ala | Glu | Asp | Pro | 245 | 250 | 255 |     |
| Glu | Ile | Ser | Asp | Tyr | Met | Met | Leu | Pro | Tyr | Thr | Ala | Thr | Leu | Ser | Lys | 260 | 265 | 270 |     |
| Arg | Asn | Arg | Glu | Cys | Leu | Gln | Glu | Ser | Asp | Glu | Ile | Pro | Arg | Asp | Phe | 275 | 280 | 285 |     |
| Thr | Thr | Leu | Phe | Asp | Leu | Ser | Ile | Phe | Gln | Leu | Asp | Thr | Thr | Ser | Phe | 290 | 295 | 300 |     |
| His | Ser | Val | Ile | Glu | Ala | His | Glu | Gln | Leu | Asn | Val | Lys | His | Glu | Pro | 305 | 310 | 315 | 320 |
| Leu | Gln | Leu | Ile | Gln | Pro | Gln | Phe | Glu | Thr | Pro | Leu | Pro | Thr | Leu | Gln | 325 | 330 | 335 |     |
| Pro | Ala | Val | Phe | Pro | Pro | Ser | Phe | Arg | Glu | Leu | Pro | Pro | Pro | Pro | Leu |     |     |     |     |



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          340          345          350
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Arg Lys Cys Gly Asp Ile Leu Gly Val Thr Ser Lys Leu Pro Lys Asp
385          390          395          400
Gln Gln Asp Ala Lys His Ile Leu Glu His Val Phe Phe Gln Val Val
          405          410          415
Glu Phe Lys Lys Leu Asn Gln Glu His Asp Ile Asp Thr Ser Glu Thr
          420          425          430
Ala Phe Gln Asn Asn Phe
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&lt;210&gt; 4807

&lt;211&gt; 1177

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4807

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<210> 4808

<211> 313

<212> PRT

<213> Homo sapiens

<400> 4808

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ala | Pro | Met | Asn | Gly | Gln | Val | Cys | Val | Val | Thr | Gly | Ala | Ser | 1   | 5   | 10  | 15  |
| Arg | Gly | Ile | Gly | Arg | Gly | Ile | Ala | Leu | Gln | Leu | Cys | Lys | Ala | Gly | Ala | 20  | 25  | 30  |     |
| Thr | Val | Tyr | Ile | Thr | Gly | Arg | His | Leu | Asp | Thr | Leu | Arg | Val | Val | Ala | 35  | 40  | 45  |     |
| Gln | Glu | Ala | Gln | Ser | Leu | Gly | Gln | Cys | Val | Pro | Val | Val | Cys | Asp |     | 50  | 55  | 60  |     |
| Ser | Ser | Gln | Glu | Ser | Glu | Val | Arg | Ser | Leu | Phe | Glu | Gln | Val | Asp | Arg | 65  | 70  | 75  | 80  |
| Glu | Gln | Gln | Gly | Arg | Leu | Asp | Val | Leu | Val | Asn | Asn | Ala | Tyr | Ala | Gly | 85  | 90  | 95  |     |
| Val | Gln | Thr | Ile | Leu | Asn | Thr | Arg | Asn | Lys | Ala | Phe | Trp | Glu | Thr | Pro | 100 | 105 | 110 |     |
| Ala | Ser | Met | Trp | Asp | Asp | Ile | Asn | Asn | Val | Gly | Leu | Arg | Gly | His | Tyr | 115 | 120 | 125 |     |
| Phe | Cys | Ser | Val | Tyr | Gly | Ala | Arg | Leu | Met | Val | Pro | Ala | Gly | Gln | Gly | 130 | 135 | 140 |     |
| Leu | Ile | Val | Val | Ile | Ser | Ser | Pro | Gly | Ser | Leu | Gln | Tyr | Met | Phe | Asn | 145 | 150 | 155 | 160 |
| Val | Pro | Tyr | Gly | Val | Gly | Lys | Ala | Ala | Cys | Asp | Lys | Leu | Ala | Ala | Asp | 165 | 170 | 175 |     |
| Cys | Ala | His | Glu | Leu | Arg | Arg | His | Gly | Val | Ser | Cys | Val | Ser | Leu | Trp | 180 | 185 | 190 |     |
| Pro | Gly | Ile | Val | Gln | Thr | Glu | Leu | Leu | Lys | Glu | His | Met | Ala | Lys | Glu | 195 | 200 | 205 |     |
| Glu | Val | Leu | Gln | Asp | Pro | Val | Leu | Lys | Gln | Phe | Lys | Ser | Ala | Phe | Ser | 210 | 215 | 220 |     |
| Ser | Ala | Glu | Thr | Thr | Glu | Leu | Ser | Gly | Lys | Cys | Val | Val | Ala | Leu | Ala | 225 | 230 | 235 | 240 |
| Thr | Asp | Pro | Asn | Ile | Leu | Ser | Leu | Ser | Gly | Lys | Val | Leu | Pro | Ser | Cys | 245 | 250 | 255 |     |
| Asp | Leu | Ala | Arg | Arg | Tyr | Gly | Leu | Arg | Asp | Val | Asp | Gly | Arg | Pro | Val | 260 | 265 | 270 |     |
| Gln | Asp | Tyr | Leu | Ser | Leu | Ser | Ser | Val | Leu | Ser | His | Val | Ser | Gly | Leu | 275 | 280 | 285 |     |
| Gly | Trp | Leu | Ala | Ser | Tyr | Leu | Pro | Ser | Phe | Leu | Arg | Val | Pro | Lys | Trp | 290 | 295 | 300 |     |
| Ile | Ile | Ala | Leu | Tyr | Thr | Ser | Lys | Phe |     |     |     |     |     |     |     | 305 | 310 |     |     |

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 <212> DNA  
 <213> Homo sapiens

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<210> 4810  
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 <212> PRT  
 <213> Homo sapiens

<400> 4810  
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 Ser Gln Pro Gly Cys His Ser Gly Leu Leu Thr Asn Thr Pro Ala Ala  
 35 40 45  
 Leu Val Pro Ala His Ala Arg Gln Arg Ser Gln Pro Ser Leu Leu Leu

|   |     |    |     |    |
|---|-----|----|-----|----|
| 50  |     | 55 |     | 60 |
| Ser Ser Ser Pro Arg Lys Ser Arg Ser Trp Gln Gly Ser Gly Pro Met |     |    |     |    |
| 65  |     | 70 |     | 75 |
| Trp Pro Gly Pro Gly Tyr Phe Pro Asp Leu Thr Ser Pro Thr Ala Gln |     |    |     |    |
|   | 85  |    | 90  |    |
| Pro Leu Gln Leu Leu Gly Ala Leu His Gly Cys Ser Phe Pro Pro Pro |     |    |     |    |
|   | 100 |    | 105 |    |
| Leu Pro Ser Gly Gln Pro Cys Pro                                 |     |    |     |    |
|   | 115 |    | 120 |    |

&lt;210&gt; 4811

&lt;211&gt; 3207

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4811

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1140

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&lt;210&gt; 4812

&lt;211&gt; 306

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4812

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Met | Ser | Leu | Asp | Lys | Ala | Glu | Ala | Ala | Leu | Val | Ala | Lys | Glu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Leu | Arg | Thr | Leu | Leu | Glu | Glu | Ala | Val | Pro | Leu | Ser | Cys | Ala | Leu | Pro |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Lys | Val | Thr | Leu | Pro | Asn | Tyr | Asp | Asn | Val | Pro | Gly | Asn | Leu | Met | Leu |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ser | Ala | Leu | Gly | Leu | Arg | Leu | Gly | Asp | Arg | Val | Leu | Leu | Asp | Gly | Gln |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Lys | Thr | Gly | Thr | Leu | Arg | Phe | Cys | Gly | Thr | Thr | Glu | Phe | Ala | Ser | Gly |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Ser | Trp | Val | Gly | Val | Glu | Leu | Asp | Glu | Pro | Glu | Gly | Lys | Asn | Asp | Gly |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Ser | Val | Gly | Gly | Val | Arg | Tyr | Phe | Ile | Cys | Pro | Pro | Lys | Gln | Gly | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Phe | Ala | Ser | Val | Ser | Lys | Ile | Ser | Lys | Ala | Val | Asp | Ala | Pro | Pro | Ser |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Val | Thr | Ser | Thr | Pro | Gly | Pro | Pro | Arg | Met | Asp | Phe | Ser | Arg | Val |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Thr | Gly | Lys | Gly | Arg | Arg | Glu | His | Lys | Gly | Lys | Lys | Lys | Thr | Pro | Ser |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |
| Ser | Pro | Ser | Leu | Gly | Ser | Leu | Gln | Gln | Arg | Asp | Gly | Ala | Lys | Ala | Glu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Val | Gly | Asp | Gln | Val | Leu | Val | Ala | Gly | Gln | Lys | Gln | Gly | Ile | Val | Arg |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Phe | Tyr | Gly | Lys | Thr | Asp | Phe | Ala | Pro | Gly | Tyr | Trp | Tyr | Gly | Ile | Glu |
|     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| Leu | Asp | Gln | Pro | Thr | Gly | Lys | His | Asp | Gly | Ser | Val | Phe | Gly | Val | Arg |
|     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |
| Tyr | Phe | Thr | Cys | Pro | Pro | Arg | His | Gly | Val | Phe | Ala | Pro | Ala | Ser | Arg |
| 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |     |
| Ile | Gln | Arg | Ile | Gly | Gly | Ser | Thr | Asp | Ser | Pro | Gly | Asp | Ser | Val | Gly |

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                245                250                255
Ala Lys Lys Val His Gln Val Thr Met Thr Gln Pro Lys Arg Thr Phe
                260                265                270
Thr Thr Val Arg Thr Pro Lys Asp Ile Ala Ser Glu Asn Ser Ile Ser
                275                280                285
Arg Leu Leu Phe Cys Cys Trp Phe Pro Trp Met Leu Arg Ala Glu Met
                290                295                300
Gln Ser
305

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&lt;210&gt; 4813

&lt;211&gt; 400

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4813

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gtgggtgtcc tgcacatgct gctgtctcct tggggctctg cacctgcct cctgtctgcc
120
agtgactgtg ggtgggaaag gaggccgtgg tggctgcagc tttcctctgc aaacctccac
180
ctcgcacaca gggcttggtt tttcctccag ctgtccagga aaccaccatc atgattgtta
240
aacacagatt tgaacattca cgaagaaact tccagggtga gccaaacct cttcctcccc
300
actgcacctc caagcagcct tcctgaaagg gaaaagagta cagacctgcc ctctggggac
360
ccctgtgccc tgccatgacc agcctttccc cttcacgcgt
400

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&lt;210&gt; 4814

&lt;211&gt; 125

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4814

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Met Ala Gly His Arg Gly Pro Gln Arg Ala Gly Leu Tyr Ser Phe Pro
 1          5          10          15
Phe Gln Glu Gly Cys Leu Glu Val Gln Trp Gly Gly Arg Gly Phe Gly
 20          25          30
Ser Pro Trp Lys Phe Leu Arg Glu Cys Ser Asn Leu Cys Leu Thr Ile
 35          40          45
Met Met Val Val Ser Trp Thr Ala Gly Gly Lys Ala Lys Pro Cys Gly
 50          55          60
Arg Gly Gly Gly Leu Gln Arg Lys Ala Ala Ala Thr Thr Ala Ser Phe
 65          70          75          80
Pro Thr His Ser His Trp Gln Thr Gly Gly Gln Val Gln Ser Pro Lys
 85          90          95
Glu Thr Ala Ala Cys Ala Gly His Pro Pro Gly Thr Ala Phe Ser Leu
100          105          110
Ile Leu Pro Val Pro Pro Thr Cys Trp Val Ser Val Ala
115          120          125

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<210> 4815  
 <211> 528  
 <212> DNA  
 <213> Homo sapiens

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 120  
 agcatgtcta caagctctgt acgcaaacga tctgaagggtg aagagaagac attaacaggg  
 180  
 gacgtgaaaa ccagtcctcc acgaactgca ccaaagaaac agctaccttc tattcccaaa  
 240  
 aatgctttgc ccataactaa gcctacatca cctgccccag cagcacagtc aacaaatggc  
 300  
 acccatgcct cttacggacc cttctacctg gaatattcac tccttgacaga atttaccttg  
 360  
 gttgtgaagc agaagctacc aggcgtctat gtgcagccat cttatcgctc tgcattaatg  
 420  
 tagtttggag taatattcat acggcatgga ctttaccaag atggcgtatt taagtttaca  
 480  
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<210> 4816  
 <211> 105  
 <212> PRT  
 <213> Homo sapiens

<400> 4816  
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 20 25 30  
 Arg Thr Ala Pro Lys Lys Gln Leu Pro Ser Ile Pro Lys Asn Ala Leu  
 35 40 45  
 Pro Ile Thr Lys Pro Thr Ser Pro Ala Pro Ala Ala Gln Ser Thr Asn  
 50 55 60  
 Gly Thr His Ala Ser Tyr Gly Pro Phe Tyr Leu Glu Tyr Ser Leu Leu  
 65 70 75 80  
 Ala Glu Phe Thr Leu Val Val Lys Gln Lys Leu Pro Gly Val Tyr Val  
 85 90 95  
 Gln Pro Ser Tyr Arg Ser Ala Leu Met  
 100 105

<210> 4817  
 <211> 1106  
 <212> DNA  
 <213> Homo sapiens

<400> 4817  
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 120  
 aagttcgtgg agaacattcg gcagctcggc atcatcgtca gtgacttcca gcccagcagc  
 180  
 caggccgggc tcaacaaaaa gctgaatttt attgttactg gcttacagga tattgacaag  
 240  
 tgcagacagc agcttcatga tattactgta ccgtagaag tttttgaata tatagatcaa  
 300  
 ggtcgaaatc cccagctcta caccaaagag tgcttgaga gggctctagc taaaaatgag  
 360  
 caagttaaag gcaagatcga caccatgaag aaatttataa gcctgttgat tcaagaactt  
 420  
 tctaaagtat ttccggaaga catggctaag tatcgaagca tccgggggga ggatcacccg  
 480  
 ctttcttaac cagctcacc cccctgtgtg aagatcccc gggactgcga tgcggcgtga  
 540  
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 720  
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 ctaggaaaaa ttttttttaa aaaagaaaaa tcagtttaat gtgggaagta cttaagtgg  
 960  
 attatatttt acattttcaa gtatagtgc taaagaatgt tttaaatgta actgttttca  
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 1080  
 aaaaaaaaaa aaaaaaaaaa aaaaaa  
 1106

&lt;210&gt; 4818

&lt;211&gt; 135

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4818

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Glu | Lys | Phe | Asp | His | Leu | Glu | Glu | His | Leu | Glu | Lys | Phe | Val |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Glu | Asn | Ile | Arg | Gln | Leu | Gly | Ile | Ile | Val | Ser | Asp | Phe | Gln | Pro | Ser |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Ser | Gln | Ala | Gly | Leu | Asn | Gln | Lys | Leu | Asn | Phe | Ile | Val | Thr | Gly | Leu |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Gln | Asp | Ile | Asp | Lys | Cys | Arg | Gln | Gln | Leu | His | Asp | Ile | Thr | Val | Pro |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Leu | Glu | Val | Phe | Glu | Tyr | Ile | Asp | Gln | Gly | Arg | Asn | Pro | Gln | Leu | Tyr |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |
| Thr | Lys | Glu | Cys | Leu | Glu | Arg | Ala | Leu | Ala | Lys | Asn | Glu | Gln | Val | Lys |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |  |  |  |
| Gly | Lys | Ile | Asp | Thr | Met | Lys | Lys | Phe | Lys | Ser | Leu | Leu | Ile | Gln | Glu |  |  |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |  |  |
| Leu | Ser | Lys | Val | Phe | Pro | Glu | Asp | Met | Ala | Lys | Tyr | Arg | Ser | Ile | Arg |  |  |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |  |  |
| Gly | Glu | Asp | His | Pro | Pro | Ser |     |     |     |     |     |     |     |     |     |  |  |  |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     |     |     |     |     |     |  |  |  |  |

&lt;210&gt; 4819

&lt;211&gt; 1655

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4819

```

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120
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180
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240
gatgtggagc ctgagtcttg gagagaagcc ttcaagcagc attaccttgc atccaagaca
300
tggaccaaga atgccttgga cttggagctt tccatctgct tttctctatt ccgccggagg
360
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420
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480
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540
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600
acgccagcct ggttctcacc catcatgtat aagacaacat caggtcacgt ccagtttgac
660
aactgcaact ttgagaacgg gcacatccag gtccatggcc cgggtacttg ccaagtgaag
720
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780
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1020
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1080
gaaaggggtg cccagacccc ggacagcagc gatggaggcc tgagtcccag cggtgaggat
1140
gaagatgagg accagctgat gtacagacta tcctaccaag tgcagggccc acgccctgta
1200

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<210> 4820

<211> 551

<212> PRT

<213> Homo sapiens

<400> 4820

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Pro | Arg | Pro | Gly | Leu | Arg | Gly | Gly | Arg | Ala | Pro | Cys | Glu | Val | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Met | Glu | Ala | Gly | Gly | Leu | Pro | Leu | Glu | Leu | Trp | Arg | Met | Ile | Leu | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Tyr | Leu | His | Leu | Pro | Asp | Leu | Gly | Arg | Cys | Ser | Leu | Val | Cys | Arg | Ala |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Trp | Tyr | Glu | Leu | Ile | Leu | Ser | Leu | Asp | Ser | Thr | Arg | Trp | Arg | Gln | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Cys | Leu | Gly | Cys | Thr | Glu | Cys | Arg | His | Pro | Asn | Trp | Pro | Asn | Gln | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Asp | Val | Glu | Pro | Glu | Ser | Trp | Arg | Glu | Ala | Phe | Lys | Gln | His | Tyr | Leu |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ala | Ser | Lys | Thr | Trp | Thr | Lys | Asn | Ala | Leu | Asp | Leu | Glu | Ser | Ser | Ile |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Cys | Phe | Ser | Leu | Phe | Arg | Arg | Arg | Arg | Glu | Arg | Arg | Thr | Leu | Ser | Val |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Gly | Pro | Gly | Arg | Glu | Phe | Asp | Ser | Leu | Gly | Ser | Ala | Leu | Ala | Met | Ala |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Leu | Tyr | Asp | Arg | Ile | Val | Leu | Phe | Pro | Gly | Val | Tyr | Glu | Glu | Gln |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ile | Ile | Leu | Lys | Val | Pro | Val | Glu | Ile | Val | Gly | Gln | Gly | Lys |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Leu | Gly | Glu | Val | Ala | Leu | Leu | Ala | Ser | Ile | Asp | Gln | His | Cys | Ser | Thr |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Thr | Arg | Leu | Cys | Asn | Leu | Val | Phe | Thr | Pro | Ala | Trp | Phe | Ser | Pro | Ile |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Met | Tyr | Lys | Thr | Thr | Ser | Gly | His | Val | Gln | Phe | Asp | Asn | Cys | Asn | Phe |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Glu | Asn | Gly | His | Ile | Gln | Val | His | Gly | Pro | Gly | Thr | Cys | Gln | Val | Lys |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Phe | Cys | Thr | Phe | Lys | Asn | Thr | His | Ile | Phe | Leu | His | Asn | Val | Pro | Leu |

245 250 255  
 Cys Val Leu Glu Asn Cys Glu Phe Val Gly Ser Glu Asn Asn Ser Val  
 260 265 270  
 Thr Val Glu Gly His Pro Ser Ala Asp Lys Asn Trp Ala Tyr Lys Tyr  
 275 280 285  
 Leu Leu Gly Leu Ile Lys Ser Ser Pro Thr Phe Leu Pro Thr Glu Asp  
 290 295 300  
 Ser Asp Phe Leu Met Ser Leu Asp Leu Glu Ser Arg Asp Gln Ala Trp  
 305 310 315 320  
 Ser Pro Lys Thr Cys Asp Ile Val Ile Glu Gly Ser Gln Ser Pro Thr  
 325 330 335  
 Ser Pro Ala Ser Ser Ser Pro Lys Pro Gly Ser Lys Ala Gly Ser Gln  
 340 345 350  
 Glu Ala Glu Val Gly Ser Asp Gly Glu Arg Val Ala Gln Thr Pro Asp  
 355 360 365  
 Ser Ser Asp Gly Gly Leu Ser Pro Ser Gly Glu Asp Glu Asp Glu Asp  
 370 375 380  
 Gln Leu Met Tyr Arg Leu Ser Tyr Gln Val Gln Gly Pro Arg Pro Val  
 385 390 395 400  
 Leu Gly Gly Ser Phe Leu Gly Pro Pro Leu Pro Gly Ala Ser Ile Gln  
 405 410 415  
 Leu Pro Ser Cys Leu Val Leu Asn Ser Leu Gln Gln Glu Leu Gln Lys  
 420 425 430  
 Asp Lys Glu Ala Met Ala Leu Ala Asn Ser Val Gln Gly Cys Leu Ile  
 435 440 445  
 Arg Lys Cys Leu Phe Arg Asp Gly Lys Gly Gly Val Phe Val Cys Ser  
 450 455 460  
 His Gly Arg Ala Lys Met Glu Gly Asn Ile Phe Arg Asn Leu Thr Tyr  
 465 470 475 480  
 Ala Val Arg Cys Ile His Asn Ser Lys Ile Ile Met Leu Arg Asn Asp  
 485 490 495  
 Ile Tyr Arg Cys Arg Ala Ser Gly Ile Phe Leu Arg Leu Glu Gly Gly  
 500 505 510  
 Gly Leu Ile Ala Gly Asn Asn Ile Tyr His Asn Ala Glu Ala Gly Val  
 515 520 525  
 Asp Ile Arg Lys Lys Ser Asn Pro Leu Gln Ile Gly Asn Pro Arg Ala  
 530 535 540  
 Glu Phe Leu Ala Ser Arg Ala  
 545 550

&lt;210&gt; 4821

&lt;211&gt; 585

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4821

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 cacttttgta caatcctcaa ttacctgcgg gatgggtctg tgccactgcc ggagagtacg  
 120  
 agagaactgg gggagctgct gggcgaagca cgctactacc tggtgcaggg cctgattgag  
 180  
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 240

atggtgacat ctccccggga ggagcagcag ctctggcca gcacctcaa gcccggtgtg  
 300  
 aagtcctgc acaaccgcag taacaacaag tactcctaca ccagcacttc agatgacaac  
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<210> 4822  
 <211> 195  
 <212> PRT  
 <213> Homo sapiens

<400> 4822  
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 Ser Val Pro Leu Pro Glu Ser Thr Arg Glu Leu Gly Glu Leu Leu Gly  
 35 40 45  
 Glu Ala Arg Tyr Tyr Leu Val Gln Gly Leu Ile Glu Asp Cys Gln Leu  
 50 55 60  
 Ala Leu Gln Gln Lys Arg Glu Thr Leu Ser Pro Leu Cys Leu Ile Pro  
 65 70 75 80  
 Met Val Thr Ser Pro Arg Glu Glu Gln Gln Leu Leu Ala Ser Thr Ser  
 85 90 95  
 Lys Pro Val Val Lys Leu Leu His Asn Arg Ser Asn Asn Lys Tyr Ser  
 100 105 110  
 Tyr Thr Ser Thr Ser Asp Asp Asn Leu Leu Lys Asn Ile Glu Leu Phe  
 115 120 125  
 Asp Lys Leu Ala Leu Arg Phe His Gly Arg Leu Leu Phe Leu Lys Asp  
 130 135 140  
 Val Leu Gly Asp Glu Ile Cys Cys Trp Ser Phe Tyr Gly Gln Gly Arg  
 145 150 155 160  
 Lys Ile Ala Glu Val Cys Cys Thr Ser Ile Val Tyr Ala Thr Glu Lys  
 165 170 175  
 Lys Gln Thr Lys Val Arg Gly Ala Pro Glu Pro Met Leu Gly Ala Gly  
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 Gly Gly His  
 195

<210> 4823  
 <211> 1984  
 <212> DNA  
 <213> Homo sapiens

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120  
ttaaaggaaa aatctacagg aagtaagaag gccaatagat ttcataccta ttcaaaagac  
180  
aagaattcgg gcaactggaga aaagaagggc ccaaatcgta acagagtttt cattagcaac  
240  
atcccatatg acatgaaatg gcaagctatt aaagatctaa tgagagagaa agttgggtgag  
300  
gttacatacg tggagctctt taaggatgag gaaggaaaat caaggggttg tgggtgtggtt  
360  
gaattcaaag atgaagaatt tgtaaagaaa gccctagaaa ctatgaacaa atatgatctt  
420  
agtggaagac cccttaatat taaagaggat cctgatggag aaaatgctcg tagggcattg  
480  
cagcgaacag gaggatcatt tccaggagga caggtccctg atatgggatc aggggttgatg  
540  
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720  
gacaaagatg gcaagagcag aggaatgggc actgtcactt ttgagcaagc aattgaagca  
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840  
atggatgaca agtctgttcc tcatgaagag taccgttcac ctgatggtaa aacaccacaa  
900  
ttaccacgtg gtcttggagg cattgggatg ggacttggc cgggtggaca gcctattagt  
960  
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